RESOURCE MANAGEMENT

Range Program Review

Final Report of the Review Task Force

Province of British Columbia
Ministry of Forests

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Foreword

In April, 1988, the Honourable Dave Parker, Minister of Forests, directed the Integrated Resources Branch to review the Ministry's Range Program. Development of a strategic plan to guide range management priorities in future was the ultimate goal. Important issues to be considered included program goals and priorities, the tenure system, range planning, grazing fees, revised legislation and policies, communication and organization. Other significant issues were identified during the review.

Defining, adopting and implementing a strategic plan for future range management activities is an evolutionary process, and this report completes the first phase. It describes the status of the current Range Program in British Columbia and includes a synthesis of viewpoints representing a wide range of resource users and managers from the public and private sectors.

Many recommendations contained in this report reflect the consensus of the Steering Committee. Timely, positive response by the Government is encouraged. Diverging viewpoints of competing users of the range resources indicate that further study and the development of effective procedures for conflict resolution are needed. Lack of adequate statistics prevented complete consideration of some key issues. Effort will be required to fill these information gaps as this review process continues.

Written comments on any issue or recommendation are invited. They should be sent to:

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Range Program Review

Acknowledgements

Many individuals, non-governmental organizations, and government agencies participated in this review of the Range Program. Without that wide basis of support, the review would not have been successful. The Steering Committee is grateful to all individuals and agencies who contributed to this review.

The working groups were each composed of a diverse set of individuals representing various interest groups and government agencies. In many cases, great sacrifices in time were made at the expense of other pressing responsibilities. The cooperative attitudes of representatives, often antagonists over resource uses, greatly facilitated the Ministry's understanding of issues and possible solutions to range management problems in the Province.

The District, Regional and Branch staff of the Range Program demonstrated a willingness to work together in identifying key issues and in finding the means by which the Program can be improved. One very positive outcome of the Program Review was enhanced communication among range management staff. A better understanding of the constraints faced by Range staff at various locations and in differing positions was achieved. The participation of Range staff was made possible by the wide-spread support from district and regional managers within the Forest Service.

Questionnaires, interviews and surveys conducted by the Working Groups provided helpful information and constructive comments. Scores of individuals, primarily from District and Regional offices of the Forest Service, set aside other important duties to devote considerable amounts of time to the Range Program Review.

In response to the discussion paper inviting the general public and interested organizations to express their views on key range management issues, 55 submissions were received. These submissions, which are summarized in the last section of this Report, were very useful to the review process.

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Introduction

Introduction

In April, 1988, the Minister of Forests called for a comprehensive review of the Range Program. Concern by ranchers over a proposal to increase grazing fees was a precipitating factor, but the need for a review had been recognized for several years.

The Forest and Range Resource Analysis of 1984 identified a number of range management issues as did the Forest Management Review of 1987. But neither of these reports investigated the Range Program in enough detail to determine if activities were achieving public goals. Nor did the reports set clear strategic goals.

Under the chairmanship of Chief Forester, John Cuthbert, a steering committee was established. Membership was from government agencies with direct interests in range resources, and from selected non-government organizations. This committee had the task of defining the terms of reference for the Range Program Review and providing advice to the Review Task Force.

Steering Committee Membership

Chief Forester, Chairman

Representatives from:

Ministry of Agriculture and Fisheries
Ministry of the Environment
Ministry of Forests
Ministry of Crown Lands
B.C. Cattlemen's Association
B.C. Wildlife Federation
Interior Forest Industry

The summer of 1988 was devoted to planning and establishing the steering committee. In August, work began on terms of reference. This was a major component of the review requiring a broad understanding of the current program in order to select areas for detailed study. By the time the terms of reference were approved on December 15, 1988, the steering committee had already developed a detailed awareness of the program and its problems.

The approved Terms of Reference are included in this report as Appendix 1.

A description of the current Range Program was developed at the same time as the Terms of Reference. This was a larger task. Changes in organization and financial management since about 1980 had fragmented the program and its reporting structures.

Operations staff were surveyed to find a functional way of describing all of the work done in range management. The structure they recommended is used in presenting findings in this review. That structure has also been adopted within the Range Program as a basis for program planning, budgeting, auditing and reporting achievements.

The detailed investigations required by the Terms of Reference were assigned to the Review Task Force which in turn coordinated the activities of nine Working Groups. During the review, one more topic and Working Group were added. In addition to carrying out these assignments, the Review Task Force was responsible for completion of this report.

Review Task Force

Manager, Range Section, Chairman
(also member of Steering Committee)

Senior Staff, Integrated Resources Branch
Regional Range Staff

Membership in the Working Groups was intentionally broad to include a scope of knowledge, experience and opinions from government and non-government sources. Each of these groups requested information and opinions from staff and many other individuals through questionnaires and interviews.

Working Groups

No.	Topic
1	Overview of Current Range Management Strategy
2	Range Administration
3	Range Management Policies
4	Economic Perspectives on Range Management
5	Weed Containment and Control
6	Inventory, Monitoring and Research
7	Range Improvements
8	Livestock/Wildlife Interactions
9	Range Planning
10	Grazing/Silviculture Interactions

To ensure that the Steering Committee obtained views from all interested parties, a Discussion Paper was prepared and mailed to about sixty individuals and organizations who had expressed interest in the Range Program. A news release announced that copies of the Discussion Paper could be obtained from Ministry of Forests offices throughout the Province. Comments were invited on the issues in the Terms of Reference and on any aspect of range management.

The short time-frame for completing such a major task was of concern during the review. Therefore, this report is a milestone on a continuing path of review, redirection and refinement. Many questions are still unanswered. But progress has been made in many areas. Some recommendations need immediate attention.

This report offers conclusions for public review and further discussion. Some findings will be controversial. But the intent of the report is to promote a better public understanding of the current program and to provide a better basis for knowledgeable comment.

Recommendations

Summary of Recommendations

Introduction

Throughout this report, recommendations have been made regarding redirection of the Range Program. Some of these are broad and apply to the Range Program as a whole, others apply to single Subactivities. Some can be implemented immediately while others require clarification of strategic program goals or revision of legislation. The recommendations cannot be accomplished with existing resources: either in terms of changes which can be implemented or program goals which can be delivered within the next two to three years. Priorities must be set.

The recommendations are divided into two categories:

- those related to defining and implementing the long-term strategic direction for the Range Program,
- those related to improving and realigning the administrative functions.

Although the primary purpose of the Range Program Review is to enable preparation of a strategic plan, that plan cannot be completed until this Report has received public scrutiny. The question is how to set priorities in the absence of a strategic plan.

There are many recommendations in this report which relate directly to the overall mission and values of the Forest Service. There are consistent themes which arose during the activities of the Working Groups, and indicate a very strong convergence of opinion. And deficiencies are identified within the current Range Program that must be addressed regardless of changes in strategic direction.

Proposed Mission Statement: Range Program

In keeping with the overall Mission of the British Columbia Forest Service, the Range Program manages, protects and conserves forage, habitat and vegetative resources for use by livestock, wildlife and all other beneficiaries of rangeland resources.

The intent of this Mission Statement is to confirm the Range Program's roles in providing stewardship of range resources on behalf of the Province, in maintaining healthy range ecosystems to the benefit of commercial and non-commercial interests, in fostering industries dependent upon those resources, in allocating fairly among competing uses, in integrating range management with other resources, in deriving revenues for the Province from commercial use of range resources and in administering a tenure system that facilitates operations of the livestock industry. This intent is made more explicit in the Proposed Strategic Goals.

The Review Task Force believes the recommendations regarding administrative matters should be given immediate priority.

They will provide many improvements in Program performance and efficiency during the next two to three years while other recommendations are considered in the light of an emerging strategic plan.

Implementation of these recommendations should begin during the period from 1989 to 1992 and continue beyond that period to completion. These recommendations are expected to remain priorities even if subsequent work results in significant change to the strategic goals.

In all cases, there is an intention to continue to involve other Ministries and user groups in the implementation of the recommendations.

The steering committee will continue in an advisory role during the public review and implementation phases.

Recommendations for Strategic Direction

Recommendation 1: Strategic Plan

Clarify the purpose and direction of the Range Program by preparing a Strategic Plan.

- Based on the findings of the Range Program Review, the Review Task Force recommends that the Strategic Plan should reflect the proposed Mission Statement and proposed Strategic Goals for the Range Program.

Recommendation 2: Staffing

Increase staffing in Districts, Regions and Headquarters by 3 positions to bring the total allocated to the Range Program to 75.

- Increase the proportion of fully trained professional and technical staff.
- Undertake organizational changes as necessary to ensure efficient operations.

Recommendation 3: Legislation and Policy

Develop new legislation and policies as required to implement initiatives arising from the Range Program Review and subsequent decisions.

- Appoint a small, senior working committee comprising representatives from Headquarters, Regions and Districts.
- Involve other Ministries and user groups in the development process.

Proposed Strategic Goals: Range Program

1. Achieve sound stewardship of range resources by increasing program activities devoted to their measurement, assessment, protection and management.
2. Ensure recognition of the social and economic values of range resources in resource allocation and investment decisions.
3. Sustain the benefits derived from range resources by enhancing forage productivity and quality and by developing an infrastructure that enables efficient use.
4. Achieve fiscal responsibility and effective delivery of the Range Program by preparing 'Program Management Plans' and auditing their delivery.
5. Promote consistent, effective and flexible delivery of program goals by establishing appropriate legislation and policies and communicating them to all staff through manuals and training programs.
6. Foster a high level of staff morale and initiative among range staff through effective training, communications and program integrity throughout the Forest Service organization.
7. Promote achievement of Forest Service goals through cooperation with other Ministry staff.
8. Define tenure responsibilities, obligations and liabilities and ensure compliance through adequate performance auditing and enforcement.
9. Derive a fair return to the Province from commercial use of range resources by ensuring that fees reflect the value of the resources and a fair price for services provided through the program.
10. Integrate range management with other resource uses and promote regional economic and social objectives by improving the quality of plans and by helping agencies and interest groups to participate in all levels of integrated resource management planning.
11. Provide fair allocation of range resources among competing uses by considering the provincial and regional goals of other resource agencies and through direct participation of interest groups in planning processes.
12. Promote compatibility of resource uses by encouraging direct involvement of resource users to mitigate conflicts and promote management investments to mutual advantage.

Recommendation 4: Fees and Charges

Develop a comprehensive system of grazing fees and charges for tenure administration services that is fair and equitable in relation to the value of the forage resource.

- Consider the costs assumed by ranchers in using forage, such as cost-sharing and maintenance of range improvements.
- Consider the increasing costs of forage use as a result of integrated management for timber, wildlife, recreation and other land use demands.

Recommendations for Program Administration

The following recommendations are organized according to the new Activity/Subactivity structure for the Range Program which was implemented during the course of the Range Program Review. See the section *Current Range Program* and Appendix section, *Range Management Activities and Subactivities* for further information. More detailed recommendations are contained in each of the Working Group Reports in Section 4.

Program Management Activity

Recommendation 5: Program Administration Subactivity

Review current staff allocations and classifications to address immediate needs for effective program delivery and clearly define roles and responsibilities.

- Consider reallocation of staff to Regions and Districts with greatest workload.
- Determine if better service could be provided by having a full-time professional position serve two Districts rather than maintaining part-time range responsibilities, or by recentralizing selected functions to the Region.

Recommendation 6: Program Administration Subactivity

Prepare Program Management Plans for all responsibility centers.

- These plans should follow the new Activity structure for the Range Program.
- PMPs (Program Management Plans) for all responsibility centers should form a compatible set of documents for delivery of program goals.

- PMPs should provide for delivery of approved plans within the management area.
- Budget estimates should be based on options developed as part of PMPs. Allocation of approved budgets and goals should be amendments to PMPs.
- Audit of performance should be based on achievement of goals specified in PMPs.

Recommendation 7:
Training and Conferences Subactivity

Establish Training Positions for newly recruited professional staff.

- There should be at least one and preferably two positions created to enable new staff to gain experience under tutorship of senior staff.
- These positions should be allocated to Range Section of Integrated Resources Branch to enable assigning them on a rotating basis to Regions and Districts throughout the Province.

Recommendation 8:
Training and Conferences Subactivity

Develop a provincial training plan to meet current needs of technical and professional range and other staff and update it as necessary to accommodate new needs arising from the Range Program Review.

Recommendation 9:
Policy Development Subactivity

Clarify current policies.

- Hold a Provincial seminar of all range staff to discuss current policies and procedures.
- Minutes from this meeting should be vetted through legal counsel and become the interim policy guide pending development of official policy statements.

Recommendation 10:
Program Audit Subactivity

Develop audit procedures to be used when Program Management Plans are in place.

Recommendation 11:
Program Audit Subactivity

Revise the collection of Range Program data to provide information with more operational relevance. Avoid duplication of data collection and improve access to compiled information.

Resource Management Activity

Recommendation 12:
Noxious Weed Management Subactivity

Establish a Noxious Weed Specialist position within the Range Section of Integrated Resources Branch.

- This position may be relocated to a Region in the future but there is consensus that it should continue to report to the Branch and remain provincial in scope.

Recommendation 13:
Noxious Weed Management Subactivity

Prepare a unified plan for containment and biological control of knapweed and other noxious weeds.

- Include procedures for addressing coordination of interagency weed control efforts.

Recommendation 14:
Range Monitoring Subactivity

Increase monitoring of rangelands through application of approved procedures for collection of bio-physical data.

Recommendation 15:
Range Planning Subactivity

Develop effective range management strategies for each Timber Supply Area (TSA) and Tree Farm Licence (TFL), in full support of integrated resource management concepts.

- Prepare guidelines for range management content of TSA and TFL plans.
- Increase participation by Range staff and range users in current TSA and TFL planning processes.
- Prepare addendums to approved TSA and TFL plans as necessary to satisfy range management needs.

Recommendation 16:
Range Planning Subactivity

Establish a process for determining the best allocation of range resources among competing uses.

- Continue work on livestock/wildlife forage allocation issues.
- Obtain comparable socio-economic information to enable analysis of demands and values of all range users.

Recommendation 17:
Range Planning Subactivity

Promote effective local planning.

- Review the status of existing Coordinated Resource Management Plans and amend or delete as warranted.
- Include specification of funding responsibilities for plan implementation.
- Provide a system for tracking approved plans and monitoring their implementation.
- Participate or take lead roles in new integrated management plans.

Recommendation 18:
Range Planning Subactivity

Ensure that range management needs are adequately considered in PreHarvest Silviculture Prescriptions and 5-Year Development Plans for Tree Farm Licences and Forest Licences.

Recommendation 19:
Range Inventory Subactivity

Complete basic inventory mapping (boundaries and improvements) for all remaining Range Units. In large northern units, complete portions where grazing is concentrated.

Recommendation 20:
Range Inventory Subactivity

Develop a range information summary capability based on interpretation of ecological classifications, soils information, forest cover and other criteria found to correlate with forage productivity.

Recommendation 21:
Range Inventory Subactivity

Conduct field mapping of ecological parameters, habitat and vegetation at appropriate levels of detail where required for specific range management purposes.

Recommendation 22:
Resource Enhancement Subactivity

Develop a cost-share policy for funding development of non-structural range improvements.

- This policy should account for the distribution of benefits among ranchers and other users.
- Include procedures for assessing cost-effectiveness of projects in delivering range management benefits.
- Include quality standards to be met by these projects.

Recommendation 23:
Range Research Subactivity

Develop a provincial range research strategy and, in consultation with Research Branch, ensure that range research priorities are given adequate ranking in relation to demands of other programs.

Recommendation 24:
Operational Trials Subactivity

Design procedures for conducting and recording operational trials.

- Methods should be similar to silviculture Sx trials.

Range Use Management Activity

Recommendation 25:
Tenure Administration Subactivity

Develop guidelines for conversion of permits to licences.

Recommendation 26:
Tenure Administration Subactivity

Increase audits of tenure holder performance to ensure compliance with tenure agreements and management plans.

Recommendation 27:
Tenure Administration Subactivity

Assign complete responsibility for administration and management of Grazing Leases to either the Ministry of Crown Lands or the Forest Service.

- Provisions must be made to ensure that range management standards are specified and monitored. This may require additional staffing in the designated agency or a requirement that lease holders must use private sector Professional Agrologists to sign management plans that satisfy basic range management standards and monitor their implementation.

Recommendation 28:
Tenure Administration Subactivity

Determine how tenured and non-tenured uses of rangelands will be administered.

- This may require protocol agreements with other agencies.

Recommendation 29:
User Management Plans Subactivity

Require improved user management plans under all tenures and ensure direct participation by the tenure holders in preparing the plans.

Recommendation 30:
Tenure Improvements Subactivity

Develop a cost-share policy for funding development and maintenance of structural range improvements, community pastures and intensive forage management.

- This policy will complement the similar recommendation for the Resource Enhancement Subactivity.

Recommendation 31:
Extension Subactivity

Develop a formal extension service within the Range Program to meet the needs of ranchers, wildlife organizations, the forest industry and the general public.

Recommendation 32:
Enforcement Subactivity

Develop a new schedule of penalties appropriate for the various types of infractions and ensure that legislation defines infractions adequately to enable enforcement.

Implementation of Recommendations

Implementing the above recommendations changes the focus of the Range Program. There is renewed emphasis on protecting and managing range resources according to sound ecological principles.

There is also an emphasis on the Forest Service's role in planning use of the range resource in an integrated manner with other resources, responding to the needs of the full spectrum of interests in forage and habitat and other uses of the range resource.

There will be a cost to undertake this new work, particularly in staff time. Staff reductions, both through formal reallocations to other tasks and through reduced access to staff under the pooled technician concept, have eroded past program emphasis on the resource. The day-to-day responsibilities for tenure administration have become the first priority.

The current allocation of staff to the Range Program is 72 positions. Results of the workload study conducted by the Organization and Administration Working Group suggest that ensuring these positions are fully available for range management would enable correcting staffing deficiencies in three Districts in Kamloops and Cariboo Regions, as well as implementing most of the above recommendations. Vacancies should be reclassified if necessary and filled with professional staff with training in resource planning and range science.

Three additional positions will be required to fill the Noxious Weed Specialist position and the two training positions, bringing the total program complement to 75.

Program funding is of lesser immediate importance than staffing for implementing the report recommendations. The Range Program budget for operational expenditures was augmented substantially for 1989/90 and, if continued at that level in future years, will be adequate subject to any decisions to increase government investment in forage enhancement and range infrastructure.

Current Program

An Overview of the Current Range Program

Introduction

Most of the topics for review listed in the *Terms of Reference* were assigned to working groups for detailed analysis. But description and assessment of the current Range Program was dealt with somewhat differently. Rather than establishing a separate working group, the topic was addressed by the Review Task Force and the Steering Committee as part of continuing discussions about the Range Program Review.

This section addresses the strategic setting in which the Range Program functions, client groups served by the program, organizational structure, and activities of the program. The baseline is provided here, against which to discuss Range Program issues and to assess the need for change.

For the purpose of the Range Program Review, a broad definition of *range* was accepted. The definition includes rangelands and range resources that are used by wildlife, domestic livestock and other users. As in current range management activities, issues of direct relevance to the livestock industry will continue to provide a focus for the program.

Strategic Setting

The Range Program functions under the broad mandate of the *Ministry of Forests Act* (1978) and under the direct mandate of the *Range Act* (1978). The *Ministry of Forests Act* stresses responsibilities for managing Crown forage on behalf of the public, coordinated with management of all other resources on forest and rangelands. The *Range Act* deals specifically with administration of tenures on rangeland for the livestock industry, prescribing for the award and continuation of tenures, collection of fees, and enforcement of regulations.

The strategic setting includes both legislation and the Forest Service management philosophy as expressed in the *Mission* and *Values* statements of the Forest Service.

Mission Statement: B.C. Forest Service

To serve the people of British Columbia by:

Providing stewardship of forest, range, and recreation resources, promoting increased employment and wealth, and protecting life, property and natural resources from wildfire.

Value Statements

The British Columbia Forest Service is dedicated to:

- its stewardship responsibility in managing the forest environment for the benefit of current and future generations.
- the desirability of fostering a stable provincial economy.
- fair and responsive allocation of resources among users.
- anticipation of problems and recognition of opportunities to improve its service.
- fiscal responsibility in the development and delivery of all programs, with full consideration of market and non-market benefits and costs.
- encouragement of personal initiative, risk-taking and entrepreneurial spirit.
- recruitment and training for excellence of its personnel.

The Forest Service *Long Range Plan* states two *strategic priorities* of particular relevance to the Range Program: resource stewardship and range production.

Resource Stewardship

Stewardship ensures that the future value and productivity of the province's forest [and range] resources are not jeopardized in the pursuit of short term gains. Dynamic changes in the resource are expected and even desirable - stewardship ensures that these changes are beneficial to society.

- The Forest Service will take a lead role among government agencies in land use allocation and integrated management within Provincial Forests.
- The requirements of good stewardship will be documented and communicated to tenure holders and the public.

Range Production

Rangeland provides forage for both domestic livestock and wildlife. Grazing rights are allocated to the ranching industry at a level that maintains range condition.

- Longer term range tenures will be promoted to provide greater security of supply in support of economically viable ranches.
- More responsibility for range planning and management of forage production will be vested in the ranching industry.
- Investments will be made to improve the accessibility and quality of forage for livestock [and wildlife].

Except for the above statements, the strategic setting for the Range Program is not formally described. There is, however, a fundamental set of values and concepts that provides a working ethic for range staff. This is perpetuated through educational institutes, the standards and ethics of the B.C. Institute of Agrologists and Agriculture Institute of Canada and advice within the Range Program.

Since the first *Grazing Act* was proclaimed in 1916, the philosophy of range management has been to maintain or improve the quality of the range resource. Rights to use that resource are allocated when the use will not be harmful.

Good management is subject to professional judgement. The Professional Agrologist is central in determining appropriate management for the highly variable ecological conditions throughout the Province. The first and basic consideration is for the whole ecology, including preservation of soil stability and productivity. After that, any stage of vegetation development from early seral to climax species is considered. In many situations such as in logging clearcuts or burns, forage is created by seeding domestic grasses and other plants and by site preparation to encourage natural forage species. Always, the emphasis is on reaching the forage producing potential for the site.

Tenure administration is a major part of Range Program workload. Under the *Range Act*, Grazing Licences, Grazing Permits, Haycutting Licences and Haycutting Permits are tenures granting the holder(s) certain rights to use Crown forage. Licences have a term of ten years, are renewable, and must have an associated grazing plan. Permits have terms ranging from one to five years. Permits, although not expressly renewable under the *Range Act*, are usually renewed on expiry. They do not require a formal grazing plan.

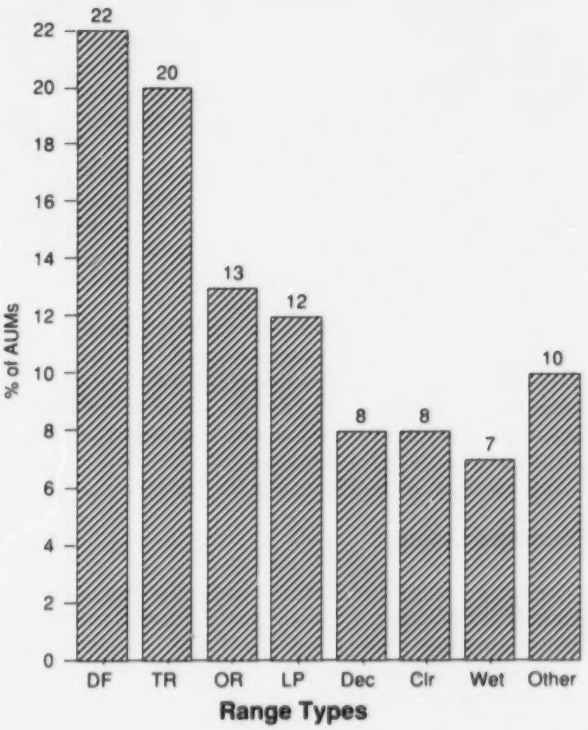
Strict legal requirements are associated with tenures. Therefore, tenure administration competes for priority with sound resource management. In times of staffing or funding limitations, servicing tenures tends to take precedence over resource management.

Anyone using Crown forage for livestock requires a tenure. That includes subsistence homesteaders and major ranchers. An exception is made for recreation, where people have been allowed to ride their horses on Crown range without holding grazing tenures because of the massive workload to control this activity. Even so, the Range Program administers over 2300 tenures, many of which are for only a few animals. Range staff normally provide the technical expertise for managing these lands.

Award of tenure rights stresses fair access to the resource, subject to concerns for the stability of the livestock industry and individual ranches. All ranchers, large or small, full-time or part-time, can compete for tenures on the basis of proven skills to manage the range resource, and the role that forage could play in improving their business.

The tenure system applies only to livestock uses so other users are accommodated through planning processes. Other use is considered prior to tenure award to the livestock industry. For example, the use of forage by elk or deer constrains the estimated amount of forage available for ranchers.

Of the fourteen range types that have been identified, based on forage productivity, tree cover, climate and land use practices, eight provide 90% of the Crown forage used by domestic livestock.



Relative contribution of range types in providing forage for domestic livestock on Provincial Crown rangelands.

Client Groups

At present, the Range Program is almost synonymous with the beef ranching industry. In the Program mandate, management effort and philosophy, the beef industry is the most identifiable client group. But other clients include commercial horse operators and sheep producers, wildlife, recreation, and some other range uses.

One of the greatest challenges for the Range Program is to fairly and equitably serve these diverse client groups. Other government agencies also serve these clients. The Ministry of Agriculture and Fisheries has a continuing interest in beef production as part of its overall mandate related to the

agriculture sector. Wildlife clients, recreational and commercial users are served by the Ministry of Environment. But, in planning and management, Range staff frequently must assume a dual role of advocate for one client group, the beef industry, while adjudicating among competing interests of other client groups. At a broader level, the Forest Service serves the timber and ranching industries as tenured clients on the same land base. The interests of these groups may conflict and require careful balancing in planning and management.

Organization Structure

The forests and rangelands located on the Crown lands of British Columbia are primarily managed by the Forest Service which administers its activities through 6 regions and 43 districts. (See Map, p. 12) At present, 39 districts issue grazing permits or hay tenures for domestic livestock.

On a provincial basis, the Range Program administers 154 haycutting and 2150 grazing tenures. Most haycutting tenures are licences and most grazing tenures are permits. The Range Program also has responsibility in planning and monitoring grazing leases which are administered by the Ministry of Crown Lands.

According to 1988 statistics, there were active tenures for 987,704 AUMs (animal unit months) across some 8.3 million hectares. About 90% were actually used. Provincially, cattle make up 95% of authorized AUMs with horses and sheep at about 4% and 1%.

While the mandate of the Range Program is provincial in scope, activities are concentrated on areas used by cattle and, to a much lesser extent, by horses and sheep. However, the Range Program is increasingly shifting resources for the benefit of wildlife.

The map showing distribution of tenures refers to domestic livestock only and does not indicate importance for wildlife.

Range Management Activities

The Range Program is part of the Integrated Resources Branch and has three Activities: *Program Management, Resource Management, Range Use Management* which include seventeen Subactivities. (See p. 14)

All District and Regional Offices were surveyed to determine the annual distribution of workload by Subactivity. The 1987/88 fiscal year was chosen as the last year for which complete records were available.

Achievements and deficiencies were tabulated for each Subactivity in two ways: by Region and by District. District information will be printed under separate cover for internal Forest Service use.

Expenditures for salary and other costs of the Range Program were summarized by Activity for each Region.

The figures report only budgeted funding, not ranching industry labour, equipment and materials expenditures. Nor do they include special job-creation programs. Expenditures by the ranching industry on Tenure Improvements are estimated to have exceeded $1.5 million. Under a special provincially-funded program called JobTrac, another $813,000 was directed to Resource Enhancements and Tenure Improvements.

The range program, analyzed by Activity, shows 17% in *Program Management*, 45% in *Resource Management* and 38% in *Range Use Management*. There is some variation among Regions which may result from work classification rather than from actual work. A much heavier Program Administration component had been expected, due to overall claims of excessive bureaucracy and paperwork within the program. But the balance is actually much better than expected.

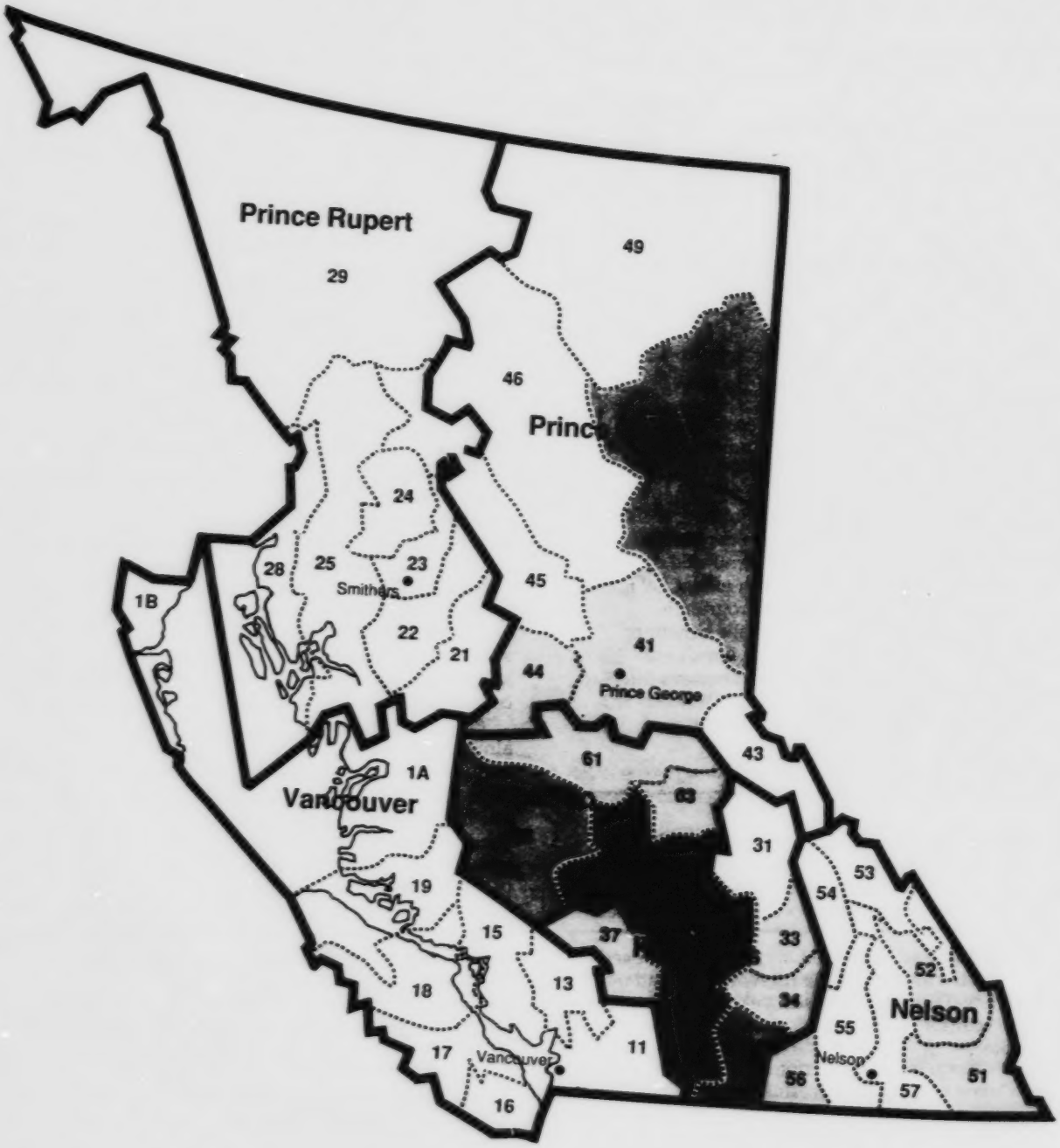
However, there are alarming deficiencies in some Subactivities. Range staff state that many goals cannot be met. Inventory, research, planning and monitoring are essential to sound resource stewardship, but total only 13% of Range Program effort. Staff training, formal program planning and associated auditing are minimal and there is a lack of policies, procedural manuals, and technical guides.

Over 40% of the Range Program goes to three capital-intensive Subactivities: Weed Containment and Control (17%), Resource Enhancements (13.5%), and Tenure Improvements (13.9%). In each of these areas the current efforts are viewed as less than adequate. Goals are not met for maintaining range condition and forage supplies.

Program Administration takes 10.2% of costs but almost 15% of staff time on a provincial average, including Victoria. In the Regions, staff time for this Subactivity varies widely from 7.6% in Nelson Region to 19.5% in Kamloops Region. At present, rigorous program planning is not done. But there may be ways to streamline administration and complete plans without an increase in time.

Tenure Administration, at 15% of costs and over 20% of professional staff time, is reasonable. A large number of tenures is administered, about 2300 Forest Service tenures and over 600 Land Act leases. Even with delegation of management responsibilities to ranchers, staff do not foresee significant time savings in the future.

Forest Service Regions and Districts in British Columbia



Forest Service Regions and Districts in British Columbia

Map Key

01 Vancouver Forest Region

Forest Districts

11 Chilliwack
13 Squamish
15 Sunshine Coast
16 Duncan
17 Port Alberni
18 Campbell River
19 Port McNeill
1a Mid-Coast
1b Queen Charlotte

02 Prince Rupert Forest Region

Forest Districts

21 Lakes
22 Morice
23 Bulkley
24 Kispiox
25 Kalum
28 North Coast
29 Cassiar

03 Kamloops Forest Region

Forest Districts

31 Clearwater
32 Kamloops
33 Salmon Arm
34 Vernon
35 Penticton
36 Merritt
37 Lillooet

04 Prince George Forest Region

Forest Districts

41 Prince George
43 McBride
44 Vanderhoof
45 Fort St. James
46 Mackenzie
47 Dawson Creek
48 Fort St. John
49 Fort Nelson

05 Nelson Forest Region

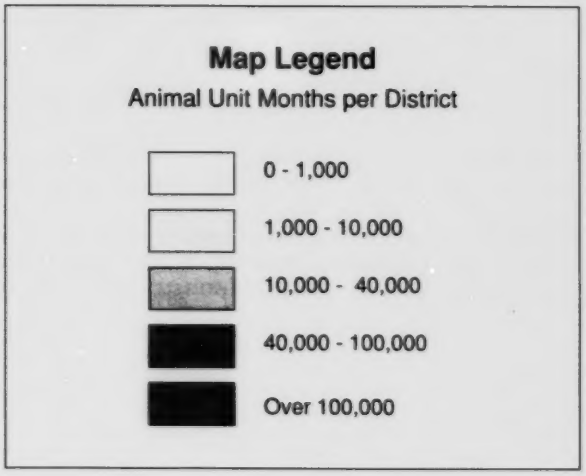
Forest Districts

51 Cranbrook
52 Invermere
53 Golden
54 Revelstoke
55 Arrow
56 Boundary
57 Kootenay Lake

06 Cariboo Forest Region

Forest Districts

61 Quesnel
62 Williams Lake
63 Horsefly
64 100 Mile House
65 Chilcotin

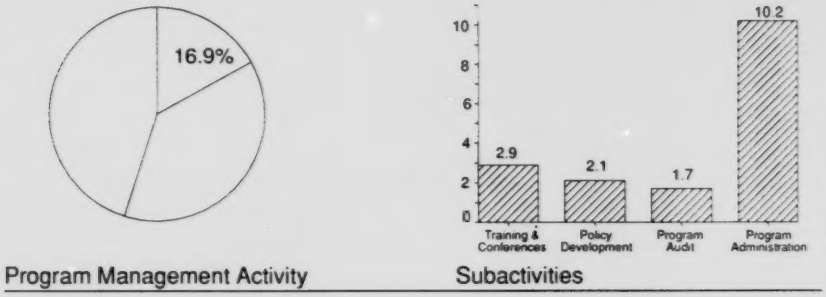


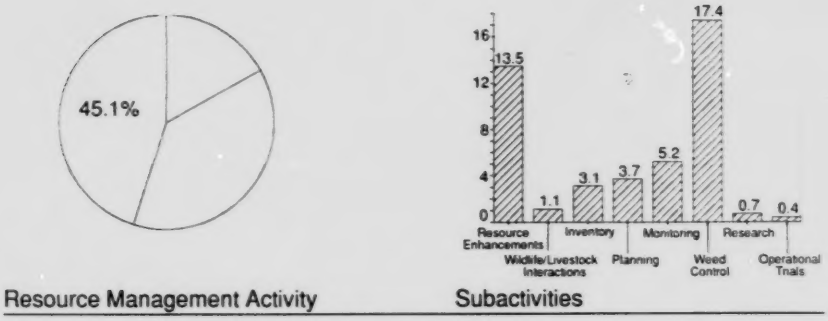
Evaluation of Range Management Activities

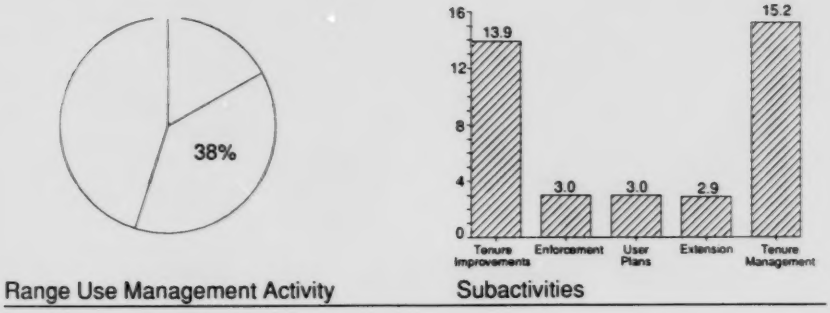
The Range Program Activities are performed with the following organization of Subactivities. They are described in more detail in Appendix 1.

Program Management Activity	Resource Management Activity	Range Use Management Activity
Program Administration	Weed Containment & Control	Tenure Adminstration
Training & Conferences	Range Monitoring	User Management Plans
Program Audit	Range Planning	Tenure Improvements
Policy Development	Livestock/Wildlife Interactions*	Extension
	Range Inventory	
	Resource Enhancements	
	Range Research	
	Operational Trials	

* Subsequently incorporated with the Range Planning Subactivity.







Percentage of Range Program devoted to each Activity and Subactivity.

Range Management Issues

The Terms of Reference, Section 2.0, *Focus of the Range Program Review*, listed ten issues for the Review. Five of these issues are discussed in this section under the heading *Issues from the Terms of Reference*: Range Tenure System;Range Planning Processes; Grazing Fees; Education, Training and Extension; and Organization.

The other five issues will be followed up later as a result of this phase of the Range Program Review.
They are:

- developing a strategic plan for Range Management,
- establishing program goals and priorities,
- preparing budgets to implement the strategic plan,
- preparing legislation to enable new program initiatives,
- revising current policies and developing new ones as required.

Numerous other issues that arose from the Review are discussed in the last half of this section under the heading *Other Issues*.

Discussion of the issues in this section is based on collective findings of the Working Groups, and incorporates views expressed by respondents to the public Discussion Paper.

Issues from the Terms of Reference

Range tenure system

Tenures are granted to livestock producers for use of Crown forage. Wildlife and other integrated management interests are handled outside the tenure system. This imposes constraints on the amount of forage that can be allocated under tenure.

The *Range Act* enables four types of tenure:

- haycutting permits,
- haycutting licences,
- grazing permits, and
- grazing licences.

The initial intent of the *Act* was to create a significant difference between the rights awarded under permits and those awarded under licences. Permits were to convey rights for a fixed period of time and carry only limited responsibility. Licences were to provide long-term security in the form of renewability in exchange for greater delegation of responsibility to the licensee.

In practice, the differences have been eroded. Although permits have a shorter term than licences, a rancher can expect his permit to be renewed upon expiry unless there are overriding circumstances with regard to forage supply, or documented poor performance on the part of the rancher. Those conditions apply to licences except that licences provide for renewal two years before expiry. Under both tenures, compensation for expropriation of rights is limited to the remaining term of the tenure.

It is generally agreed that the present tenure system is not satisfying the objectives of either the industry or government. A long-term tenure that provides a secure forage supply is an advantage to the livestock producer. The livestock producer also benefits from being able to pursue business goals with a minimum of government interference. From government's perspective, there is an advantage to delegating as much responsibility to the ranching industry as possible, consistent with sound range management and fulfillment of the public interest.

The Policy Working Group recommends restoring the distinction between the two types of tenures. Short-term, non-renewable tenures are suitable for a variety of circumstances, such as anticipation of a forage supply shortfall or when the ability of a livestock producer to manage Crown range is not yet demonstrated. Long-term, secure tenures can provide the incentive for investment in ranch development and encourage a high standard of range management. Achieving this greater distinction will require lessening rights under permits and providing a more attractive, flexible, but secure form of licence.

Making permits non-renewable would be consistent with the *Act* as currently written (Section 15 provides for subsequent tenures only on licences). Upon expiry of a permit, the resulting vacancy should be available for re-allocation. The holder of the expiring permit could be given priority based on management performance. In some cases, existing permits could be rolled into licences with the tenure holders given an option on the licence. Defining conditions under which permits can be converted will be essential.

Licences now provide security of tenure but have only limited management flexibility. Licensees should be able to earn the right to manage their tenure to their best advantage by demonstrating that they consistently meet government objectives. These objectives are: maintaining range condition and integrating with other resource users. Licence conditions should include preparing management plans, monitoring range conditions, working directly with other resource users such as the forest industry, and making range improvements in accordance with plan objectives. Range staff should advise, provide extension services, approve plans and audit performance.

One of the great dilemmas in integrated resource management is defining responsibilities and liabilities for overlapping tenures. The majority of range tenures provide rights over lands which are also included in timber tenures. When two uses are not totally compatible, some infringement on tenure rights occurs. Although Government policy is to encourage resolution of problems by tenure holders, there remains a role for Government to provide precise operating conditions for each industry; and to arbitrate disputes that will inevitably arise. The Working Group on Grazing/Silviculture has examined the conditions and made recommendations.

A significant consideration is the way the current tenure system treats area rights and forage rights. The *Range Act* appears to have been written for area-based stability, as occurs on open grasslands. There, a rancher knows that forage will be produced on that area year after year, decade after decade. That is not the situation on many forested rangelands where forage production occurs primarily during the first 20 to 30 years of forest regeneration. The rancher must be able to move to new openings as the growing forest shades out ground vegetation. Although relocation efforts are made, neither the *Act* nor the tenure agreement adequately protects the displaced rancher. An extreme case would be if the only available relocation could be awarded to a new tenure holder, leaving a long-established tenure holder without renewable rights. The *Act* should include a provision for "last in, first out", or across-the-board reduction within a management unit for all tenure holders.

Who gets to use Crown forage remains a contentious and problematic aspect of range management. Priority goes to the rancher who demonstrates commensurability. That is, priority goes to the rancher who owns or leases sufficient land to sustain a herd of cattle during the period when they are not on Crown range. The combination of private and Crown holdings promotes viability and stability in the industry. Ownership of cattle is also required to promote development of high quality, disease-free herds. Stability in the herd also retains

the learned herd behavioral patterns that enable control of the animals while on Crown range.

Although all of this is well-intended, total success is doubtful. A disproportionate amount of staff time is devoted to rights, and particularly to ensuring that ranchers satisfy eligibility criteria. The manner in which the rancher can make economic decisions is constrained: to purchase feed or to manage private lands more intensively for forage production. Satisfying the commensurability requirements can override other activity and lead to poorer investments. There is wide variation in application of policy from one Region to another, and even between Districts in the same Region. Ownership of cattle is problematic and difficult to enforce. The policy is contravened by various arrangements where ranchers sublet tenures or rent animals to meet stocking requirements.

There are no easy ways to provide fair allocation of forage while promoting Government's goals for the industry and protection of the resource. This topic should be further investigated because it is a major contributor to the administrative workload of the Range Program. It is possible that better participation in Timber Supply Area planning will lead to better range management strategies, and provide better criteria for forage allocation. In particular, preferred size of tenure and type of livestock operation can be analyzed in relation to industry goals. This would provide criteria to supplement or even replace existing policies.

Several specific questions have arisen recently regarding the need for range tenures in circumstances that don't directly involve ranching. In the first case, both recreational and commercial horse operators have been allowing stock to graze on Crown forage as they are ridden on Crown range. This is in contravention of the *Range Act*. But the *Act* has not been enforced in the past because of the tremendous workload.

Now, however, competition for forage, especially among commercial horse operators, is increasing. A new policy, now in draft form, specifies what will be required to obtain tenures. No effort will be made to provide tenures for recreational horse riders at present because of the impossibility of enforcing compliance.

In the second case, sheep are being used as a silvicultural tool to control brush. When sheep are grazed on Crown range under a normal ranching operation, they must be covered by a tenure. Should that requirement be waived when they are being used for brush control? The conclusion is that tenures will be required in all cases and that grazing fees must be paid. Any contract negotiated with forest companies for brush-control services should take the grazing fee into account.

Range planning processes

A common theme throughout all aspects of the Range Program Review has been a call for more planning. Plans will clarify budgets and enable auditing performance throughout the organization. Plans are also needed to direct efforts to the highest priorities.

In the past, Range planning has been accomplished with Coordinated Resource Management Planning (CRMP). It brought together users with local vested interests to resolve problems. It was highly successful, especially in planning for investment of ARDSA funds. However, local planning systems cannot be totally effective without broader strategic and tactical plans that establish a context of higher-level provincial and regional goals. That higher level is where range planning has been weakest.

A generally-held belief is that the range resource is of local concern and not affected by higher-level strategies. This is not correct. Plans should determine how range resources will be managed:

- to meet goals of the Province and ranching community for the livestock industry;
- to accommodate wildlife interests;
- to integrate forage and timber production;
- to resolve other issues of regional importance such as water quality or tourism.

Plans for Timber Supply Areas (now called Resource Management Plans) are intended to provide strategic direction for timber, range and recreation management throughout the province. Those plans have been criticized for having an over-riding timber focus. But efforts are now underway to improve this.

Integrated use must be more clearly defined in relation to the three resources within the Forest Service mandate, and in relationship with other resources.

The current, approved Resource Management Plans do not provide adequately for range management. It would be worthwhile to review some approved plans and produce addendums for range. The altered plans could then be prototypes for new Resource Management Plans to include range management.

Amendments to the Forest Service Planning Manual will incorporate new guidelines for committee structures that are expected to give better representation of user interests within the management unit. Timber Supply Area Steering Committees evolved from Silviculture Committees and have a strong timber bias, both in membership and focus. District managers can include other interests on the Committees but, except in a few cases, have kept the membership restricted. The ranching industry sometimes becomes involved in special subcommittees as in the Merritt Timber Supply Area but not as a member of the main Committee. Involvement of the Ministry of Agriculture and Fisheries is notably absent even though their goals for the ranching industry are influenced by decisions in the Range Program. The only government agency with regular representation is the Ministry of Environment.

Coordinated Resource Management Plans (CRMPs) are part of a set of plans now called Local Plans. They tend to be issue-oriented to resolve conflicts among licenced resource users and other interest groups. Area under consideration can vary in size from small range units to the Rocky Mountain Trench portion of the Cranbrook and Invermere

Forest Districts. It is important that the various interests agree on resource management objectives in that area, and include any strategic direction from higher-level plans.

At present, many CRMPs may have lapsed without follow-up. It is essential to the credibility of the Forest Service that any plans which are put in place are adequately documented, monitored and, when no longer relevant, formally terminated.

A high priority should be determining the current status of all range plans and bringing them under proper management. Another high priority should be reactivating local planning including CRMPs in order to resolve outstanding issues of integrated management such as timber/livestock, water/livestock and wildlife/livestock interactions.

Another set of plans parallel the system of integrated management plans (Resource Management Plans through CRMPs). They deal with operational issues. They are called:

- range sectoral plans, at the regional level,
- range unit plans,
- grazing system plans.

Sectoral plans have not been developed for range but should define the goals and priorities that will feed into Resource Management Plans. Range Unit Plans are in place in some Districts and document such things as locations of major fences, water developments and tenure areas. Grazing System Plans are the equivalent of forest tenure operational plans and lay out the details of range management within the tenure area.

These plans vary considerably in detail and are not usually adequate for monitoring performance. Improvement is needed everywhere but especially where overlapping tenures between timber companies and ranchers require preparation of detailed management prescriptions.

Under the Range Act, Grazing System Plans are required for licences but not for permits. This deficiency can be resolved by a policy that makes preparation of a plan a condition of a permit under Section 6(b)(ii) of the Act.

There was considerable debate during the Range Program Review about the respective roles of the livestock industry and Range staff in preparing plans. The many ranchers with small tenures are not likely to have the technical expertise or financial resources to prepare Grazing System Plans, or to participate effectively in higher level plans. There will be a continuing role for Range staff at all planning levels. But it is important that the rancher:

- participates in establishing the prescriptions in plans
- is involved directly with other resource users to work out mutually acceptable management regimes.

The PreHarvest Silviculture Prescriptions stress direct involvement of tenure holders. The Forest Service can improve the effectiveness of this approach by providing extension services in planning and technical advice on range management.

Options to improve resource allocation

The Economics Working Group examined different approaches to resource allocation which have relevance to planning processes (i.e., allocation of forested and non-forested rangeland and resources among livestock, wildlife, recreation, woodfibre and other interests). One extreme is a market-based system; the other is a centrally-planned system. In between are many options.

In theory, the advantage of a market-based system is that it would allow range resources to be allocated to the highest bidder and the highest-value use. But there are a number of disadvantages.

- Sale of range rights implies the provision of certain property rights. This is not consistent with existing provincial policy of multiple use of common property.
- Experience elsewhere shows less cooperation among ranchers and increased costs.
- Who would pay for range for wildlife use?
- If the bidding is open to all, there has to be assurance that all users have equal opportunity to bid, and that the ability to bid is not unduly affected by government subsidies.
- Bidding would cause a major upheaval in current land use. There would be major industry costs, training and social costs for people displaced, loss of income, and need for re-settlement.

The general conclusion is that a market based system would not be practical and would not result in allocation of rangeland in the public interest.

Central planning implies centralization of range management planning activities currently dispersed through various ministries. Such consolidation would be difficult to achieve. Data, personnel and financial expenses would be prohibitive. Such an approach would not be feasible under the current structure and administrative concepts of government.

District-level allocation decisions fit with Timber Supply Area planning. Information about user needs and resource availability is more available at the local level. But non-timber interests are at a disadvantage in the negotiating process. Locally, they may not have the time or funds needed to effectively prepare and present a case.

To be effective, local planning has to be supported by approval, monitoring, auditing, and enforcement by an appropriate administrative body.

For provincial-level allocation decisions, targets would be established at the provincial level for resource allocations at the regional level. The allocation would provide for decentralized planning within the TSA (Timber Supply Area) framework and provide provincial targets for availability, use and monitoring of land resources.

The advantage of the latter approach is that it gives non-timber users an opportunity to prepare and present their needs. It puts the onus on government to act as an arbitrator, and make decisions on resource use, based on public interest. This is viewed by the Working Group as the most practical option.

The Economics Working Group recommends creation of a Provincial level decision-making body which would include representation of timber, wildlife, agriculture, water resources, recreation, tourism, other user groups, and relevant ministries.

Grazing fees

A proposed increase to grazing fees in early 1988 led to much controversy in the Range Program Review. Several hundred letters from ranchers opposed any increase in fees. Consequently, fees were unchanged during 1988, pending completion of the Review.

There are a number of ways to look at pricing for grazing rights:

- *net value* obtained by subtracting the cost of use from the gross value of the forage. This is similar to stumpage on timber prior to 1988;
- *cost recovery* of program activities that benefit the livestock industry;
- *administered price* set by government as the minimum at which government is prepared to sell the resource;
- *market value* of the forage established through competitive bidding.

Because of the high degree of variability in forage quality, use costs, differences in management style, and general lack of economic data, the conclusion of the Range Program Review Steering Committee is that setting grazing fees must remain an administrative decision. That decision would involve government negotiations with the livestock industry. The following discussion highlights points to be considered in those negotiations.

Consultant report

Consultants were commissioned to give independent opinions on an appropriate way to establish grazing fees, and on fair and equitable charges. They were asked to consider the following:

- B.C.'s grazing fee related to other jurisdictions in Western Canada and in the United States;
- the effects of fee increases of up to $1.50 on the competitive position of B.C.'s ranching industry;
- the variation in grazing opportunities in B.C. including factors affecting the value and cost of forage;
- the distribution of benefits among interest groups in addition to ranching.

The consultants were also asked for an opinion on the adequacy of current charges for Crown grazing.

They suggested that a fee increase might be justified, but were adamant that a flat-rate fee is inequitable. Any increase in fees without recognizing differences in forage values would compound existing inequities.

... continuing to use the present formula to establish grazing fees will not lead to fair market value being received for grazing opportunities, nor will it reflect the range of values among available opportunities.

They suggested corrective measures:

...the Range Program should be working towards a fee schedule that is based on a combination of indirect evidence (appraisal and estimation) and direct evidence (competitive bidding), to assist both in establishing fees and deciding on the allocation of forage among users.

They were strongly in favour of price establishment through a competitive market.

It appears to the Steering Committee that other alternatives for establishing price should be exhausted before competitive bidding is contemplated. Current policies stress ranch stability and award rights based on proximity to the ranch. A bidding system is so contrary to this that a complete revamping of the tenure system would be required to implement it.

A variable grazing fee could provide equity among ranchers, and capture a greater proportion of the resource value.

The consultants' conclusions rely in part on comparisons with other jurisdictions. Although other information is used in the report to support those conclusions, the Range Program Review Steering Committee questions some of the comparisons made with fees in other jurisdictions. There are major differences between B.C. and other areas in:

- rights conferred under tenure,
- quality of grazing land as measured by hectares per month of grazing,
- methods for financing investments in fences and other range management structures.

As the consultants point out, the most comparable jurisdiction appears to be the Bureau of Land Management (BLM) in the United States, where both the tenure system and the forage resource tend to be similar to B.C. At the time of the study, fees were almost equal (all dollar values are in Canadian funds):

$1.84 per AUM on BLM lands,
$1.75 per AUM on B.C. lands.

The consultants say that charges on BLM lands are below fair market value and that proposed incremental increases

... were frequently thwarted by political intervention in the form of moratoriums and limitations on increases.

Subsequently, the BLM has announced its intention to proceed with a 25% fee increase for 1989, the maximum limit permitted under Section 6(a) of the *United States Public Rangeland Improvement Act, 1978.* The new fee will be $2.30 per AUM.

During the course of the Range Program Review, a number of alternatives for a variable fee were considered but could not be investigated in detail. All options require data collection and careful analysis before implementation. They vary from establishing

a few broad geographic zones, to recognizing differences in livestock characteristics and stocking rates, to a comprehensive appraisal system that estimates the net value of forage on an individual permit basis. The benefits vary from a small increase in equitability and value capture at low cost, to greater increase at much higher cost.

There are a number of other options for generating Forest Service revenues.

Fees for service

There are significant staff costs in administration of tenures including awards, renewals, transfers, and other services. Charging for these services would be consistent with current policies of other Ministries such as Crown Lands.

Charges for non-use

Ranchers can apply for "non-use" of tenured grazing rights if less than 90% of the authorized level is to be used. The fee paid on the non-use portion is only $0.20 per AUM. Charging the full grazing fee for all rights under tenure would not only generate more revenue but would simplify the billing process. Where the Forest Service restricts the amount of use under a tenure for biological reasons, fees should be waived.

Auditing of range use

There are cases where livestock remain on Crown range after the period of tenure. Closer auditing would allow collection of trespass fees for unauthorized use.

Higher fees for new tenures

Increasing a long-standing fee schedule may present difficulties. Fees could be increased at the beginning of new tenures and upon transfer of existing tenures, leaving alone fees for continuing tenures. This way a buyer can be aware of the real expenses of the ranch and can decide whether or not Crown grazing makes economic sense.

In the present system, extra value not included in a fee tends to become capitalized into the selling price of a ranch. A buyer, considering purchase of a ranch plus Crown tenures that will be transferred with the sale, tends to evaluate the operation as an economic whole. Continued access to cheap forage is expected. The seller, who is also aware of the economic value of the whole ranch, will expect a higher price for assets.

Although a wary buyer should realize that Government is not bound to retain a fee structure, many ranchers will feel penalized by any increase in the fee schedule. There is a direct parallel between this situation and the sale of any licence to a limited resource, such as in the commercial fisheries on the West Coast.

Cost recovery

The consultants and the Economics Working Group examined cost recovery. Although the consultants specifically rejected cost recovery as a basis for setting grazing fees, the issue is discussed here to answer the question: "If Government were to pursue cost recovery, how much of the cost of the Range Program is attributable to the livestock industry?"

It is clear that the Range Program serves a number of interests besides the livestock industry. An attempt was made to divide expenditures into two categories:

- *Resource Stewardship:* government responsibility for managing the range resource in the public interest
- *Commercial Use:* services and support to the livestock industry.

Each Subactivity was assigned in part or in whole to one or the other category. That assignment was often arbitrary, but different groups made the same assignments, even with different assumptions.

Resource Stewardship is 50% to 55% of the program, and Commercial Use is 45% to 50%. For this report, 55% and 45% are the figures used. For convenience in classification of expenditures, Resource Stewardship can be defined to include all of Resource Management Activity, and 55% of Program Management Activity. Commercial Use includes all of Range Use Management Activity, plus 45% of Program Management. The result is consistent with the other 55:45 split.

Based on past Range Program annual budgets of around $5.2 million, the Commercial Use portion would have been $2.3 million. For the estimated 1989/90 budget of $6.0 million, the Commercial Use portion would be about $2.7 million. Of this, about $0.2 million would be recovered by charges for grazing leases under the Ministry of Crown Lands. The effect of tighter accounting for Range Management staff time could be to reduce overall reported costs by about $300,000. The Commercial Use portion would be reduced by $150,000.

To achieve full cost recovery for the commercial use portion of the program, revenues from grazing fees or other charges would have to increase between 45% to 55% above the 1988/89 level of $1.8 million, assuming a program budget of between $5.8 and $6.2 million.

Education, training and extension (communication)

This is a broad issue. It includes:

- educational development for range specialists from university through to professional upgrades,
- on-the-job training for both technical and professional staff,
- extension services for rangeland users and the public.

New training requirements have been imposed on the Range Program by organizational restructuring and a Government desire to transfer more responsibility to resource users. Decentralization within the Forest Service means that policies and

procedures must be clearly communicated to each District, and staff must be trained to use them.

Staff reductions throughout the Forest Service have resulted in pooling of technicians among programs and within Districts rather than specific assignment to a program. This too requires training more people for range management tasks. In many cases, their technical experience will be in unrelated fields. Even among specialized Range staff positions, some individuals are required to carry other responsibilities in addition to range management. Consequently, there is less time to keep up with policy and procedural changes. Frequent training upgrades are necessary if consistent program delivery is to be attained.

Further, the range manager often needs to understand forest and wildlife management as well as range management. Rangelands in British Columbia are predominantly forested and forage production requires integration with timber production. Wildlife as well as livestock use that forage, and in many cases there are other uses and concerns such as recreation and water quality.

Although not investigated during the Range Program Review, concerns were expressed about the type of professional training offered at universities. The Range Program requires individuals with an understanding of range science, integrated management planning, extension, wildlife management, forest ecology, silviculture, and forest protection. In future staff recruitment, there will be a demand for individuals with cross-disciplinary training.

For present staff, on-the-job training and upgrade courses could immediately augment knowledge and experience to meet new demands in integrated management of range resources.

Extension is defined as training staff in extension specialties, and providing training to others through extension services. A well-planned, formally-established Extension Activity is needed by range management staff, range users, other ministries and the public.

At present, Range staff work closely with ranchers in preparing tenure management plans and in advising them on day-to-day range and livestock management problems. Since forest regeneration has been delegated to forest companies, ranchers and Range staff have become involved in interactions between cattle and reforestation.

There are advantages to having the resource users work together to develop plans and resolve difficulties. But they need planning assistance and expertise from the Forest Service. Other public interests require access to information about resources and their management.

Organization

Range clients and staff have seen effectiveness, consistency and morale decline precipitously in the last ten years. The Range Program has been decentralized to the point where structural integrity has been lost. This might happen to any small program, but is a particular problem for Range staff who report through a management structure tuned to timber production.

A lack of formal policies and procedures compounds but is not the sole cause of the problem. Even with new policies in place, it will be necessary to improve delivery of the Range Program within the current organizational structure.

One problem is the isolation of District from Regional Range staff. In some cases, District Managers support and encourage direct communication. In others, territorial lines are defended and formal reporting rigidly enforced. The result inhibits the flow of advice and information and decreases consistency in policy interpretation and program delivery.

The Range Program can function in a decentralized environment. It already does in some parts of the Province but needs to extend throughout the organization.

Headquarters and Regional staff, at present, appear to have good lines of communication. And Regional staff provide to Headquarters a pool of policy and technical expertise. This should be formally recognized in a Headquarters/Region team approach to program management.

Another problem is in drawing on technical pools for Range Program services. There has been a recent trend away from assigning technicians to each of the Forest Service's programs. The technicians have been pooled. There are definite efficiencies to be gained, but pooling also poses difficulties for the Range Program. Different training is required for range management than the strictly-forestry background of most technicians.

Possible solutions include:

- extensive training of all technicians in range management,
- training of selected pool technicians who will be given priority in range management assignments,
- retention of range specialists where the workload warrants a full-time technician.

Staffing relative to workload remains an organizational issue. The initial allocation of Range staff during Forest Service reorganization was not balanced with workload, and has not been formally adjusted. Regions and Districts with surplus allocations of staff have either assigned those staff to other duties or provided a higher level of service than is possible elsewhere. In districts where staffing is minimal, only the most basic program goals are met. Some of these Districts are very important from a range perspective.

The Organization and Administration Working Group pointed out inequities. But the workload study was not detailed enough to make firm recommendations for staff realignment. Analysis of the questionnaire on District activities will clarify some issues when responses come from *all* locations.

Overall staffing levels are difficult to define. Unfortunately, staff time is not tracked as closely as other program expenditures. Pooled and shared positions make tracking difficult.

Decisions on staff deployment are the responsibility of the Regional and District Managers, not the Program Manager. There may or may not be consultation on relocation or reassignment decisions when staff are moved to other programs. Fair treatment of these problems, across the Province, will require careful coordination and consideration.

There is a strong recommendation that two training positions be created and rotated among Regions and Districts. This would give new staff an opportunity to learn procedures and gain experience before moving into management roles. Decentralization has created a number of "one-man" Districts within the Range Program. New staff are usually first employed straight from university or technical school with little or no experience.

The other recommendation is to revive the Weed Specialist position that was lost after reorganization. This and the two training positions should be attached to the Range Section.

Other issues

Monitoring and auditing

A comprehensive program management and auditing system is required within the Range Program.

Most Working Groups identified shortcomings in resource monitoring, program audits, and licensee audits. The Working Group on Resource Monitoring concluded that the new Range Monitoring Guidelines, now being implemented on a trial basis, will enable better monitoring once staff have been trained in their use.

There remains a problem, however, in the current amount of monitoring. The 5% of program devoted to monitoring is not enough. New demands have been made for assessment of cattle-use of clearcuts under PreHarvest Silviculture Prescriptions. Demands have also been made to assess wildlife and livestock interactions on rangelands.

Monitoring addresses range condition directly, but auditing examines the delivery of range programs and plans. Program audits are minimal and sporadic. Each Region undertakes some form of audit of its Districts but, in the absence of approved program management plans, emphasis has been on adherence to procedures rather than on goal achievement and effectiveness of program delivery.

Concern was expressed that program management decisions made during budgeting are not communicated and funds are often not directed as required. This is difficult to audit without program management plans.

In developing a written plan, Range staff usually work closely with the rancher to provide a very flexible statement of intent rather than a required set of actions. Plans and the planning process should be improved to the point where Ministry staff become less involved in day-to-day ranching operations. The ranchers would then pursue their businesses within bounds set by the plans and the audit role would become paramount.

What is range?

In order to conduct a review of the Range Program, a good idea of its mandate and functions is required. During the course of Working Group discussions, it became evident that there wasn't a consensus on the meaning of *range*, let alone agreement on purpose of the Program. Differences of interpretation also became evident during investigation of issues.

The problem is that *range* in British Columbia doesn't fit the classic concept of livestock roaming freely over prairie grasslands. The lands being managed under the Range Program are used for timber production as well. Forage is produced under open-grown forests in the drier parts of the Province, or elsewhere in openings created by logging or fire.

By examining the activities of Range staff, the emphasis on forage production for beef cattle is clear. However, the program does more than that. For example, in planning for mixed wildlife and cattle use, cattle may have to be excluded from certain areas. Is that area no longer range? And what about the lands being enhanced for horse grazing and wildlife forage in the northeast part of the Province? Is that *range*?

The Society of Range Management (SRM) uses a very broad definition of rangelands that is applicable to British Columbia.

Although the livestock emphasis is evident, this definition opens the door to consideration of forage, other vegetation and habitat. In a practical sense, though, the SRM mandate could not be fulfilled without a considerable expansion of the Range Program as it is known in British Columbia. Another fundamental question is: "Who is responsible for managing habitat for wildlife?" The Forest Service, under Section 4(c) of the *Ministry of Forests Act*, is required to consider habitat when managing

Rangeland and range resources*

The Society for Range Management recognizes that rangeland is a broad category of land, comprising more than 40% of the earth's total land area and producing a variety of resources beneficial to man. The principal characteristics of rangeland are (1) a natural vegetation of predominantly grasses, grass-like plants, herbs, or shrubs; (2) an evolution closely associated with grazing in the precivilization state; and (3) a suitability to ecological management rather than to agronomic management. Rangeland includes natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

The limits of the broad category of rangeland are not precise. The Society recognizes that the term "range" in the popular sense embraces forest lands with an understory of periodic cover of herbaceous or shrubby vegetation. Rangelands have also been seeded to domesticated or introduced plant species. Seeded lands which are managed by ecological principles rather than agronomic principles are properly termed rangelands.

Range resources include both tangible and intangible products: grazeable forage, wildlife habitat, water, natural beauty, recreational opportunities, minerals, some wood products, germ plasm for domestication and breeding, and areas for study of the ecology of natural systems. The kinds and amounts of these rangeland resources will vary over time and from one location to another.

* *BENCHMARKS* - a statement of concepts and positions by Society for Range Management.

forest and rangelands. But *who* in the Forest Service is responsible? How does that role relate to the Wildlife Branch in the Ministry of Environment?

In practice, the Forest Service approach to wildlife habitat is to consider it through planning processes. In some plans, range management staff may play a lead role in considering wildlife needs on rangelands; in others it may be the regional planner or a timber officer who is the lead player. In each case, however, the Ministry of Environment brings management expertise to the table to specify what is needed to fulfill wildlife management objectives.

The Forest Service task is to integrate uses as well as possible, making trade-offs if necessary, to approve plans, and to monitor their implementation. This is where range management staff can be drawn into the grey area between managing land to produce livestock forage and managing the same area as habitat for wildlife, or protecting beauty as a tourism asset. The majority conclusion, although not a consensus, was that Regions and Districts with specialized range staff should accept responsibility for the Forest Service role in habitat management as well as in forage management. Only in Vancouver Region, where range management is not a significant factor, should this role fall to other staff.

Who manages the resource?

The government's role

In recent years, much attention has been given to reducing government involvement in private sector decisions. From a business standpoint, that means more reliance on the entrepreneur to take responsibility for success or failure. Although this is the essence of free enterprise and venture capitalism, it raises many questions when business relies on use of a public resource. Of particular concern is to what degree government can delegate resource management responsibilities to the private sector.

Yellow pine rangeland within an ecological reserve, protected from timber harvesting and livestock grazing.

One view is that total privatization of resources eventually serves the public well through private interest response to market pressures. Another view is that transfer of public assets to the hands of a few allows those few to reap substantial profits. These philosophical differences in resource control extend well beyond the scope of the Range Program Review.

For the purposes of this review, the prevailing notion of Crown ownership and intervention is accepted: that the Crown should retain ownership, and intervene in allocation and management of the resource on behalf of the public. Three options for carrying out that role were considered from the perspective of responsibility for management costs: stewardship, landlord and user-pay.

In the role of range stewardship, the responsibilities of the Crown would be:

- to minimize disruption to established range management systems by other resource developments, or by land alienation;
- to cost-share projects that significantly benefit the Crown;
- to cost-share rebuilding of old and outdated improvements.

To implement the *stewardship* concept, a number of changes in legislation and policy would have to be considered. These include:

- accurate definition of benefits from range improvements to all users and to the Crown;
- recognition in the compensation portion of the Act of user's financial loss of planned benefits when land area is deleted from an agreement;
- recognition in the compensation portion of the Act of the depreciated value of range improvement when land area is deleted from an agreement;
- recognition of the grazing licence as the preferred Forest Service document for all qualified users of Crown range.

In the *landlord* concept, protection of the range resource would remain paramount as in stewardship, but the government funding emphasis would be on providing basic infrastructure for long-term management and use of the resource. Cost-sharing would be for range resource developments that help integration of the ranching industry with other resource users, or that produce benefits for other purposes than forage for domestic livestock.

The range user would be expected to participate in cost-share arrangements for general range infrastructure and to undertake full responsibility for investments that are for user convenience such as corrals and cabins. The user would also accept full responsibility for maintenance to all improvements.

The *user-pay* concept of management approaches private ownership. It transfers all range improvement responsibilities to users of Crown lands, with a few exceptions. Strong proprietary interests are implied in compensation for the additional investment and management responsibilities. User funding is emphasized for construction and maintenance of

range improvements that directly benefit the user's operation. Government funding responsibility would be limited to improvements for wildlife and other Crown interests. Cost-sharing with the range user would occur on multiple-beneficiary projects designed through approved planning processes.

The following changes in legislation and policy would have to be considered for the user-pay concept:

- longer tenures offered to the livestock industry;
- changes to Transfer and Commensurability (tenure qualification) policies to allow the sale of range tenure independent of the ranch base;
- Forest Service arbitration powers to resolve disputes and to impose decisions on participants in recognized planning processes;
- recognition in the compensation portion of the Act of property rights and planned benefits.

The recommendation is that the *Landlord* concept should be adopted by the Forest Service. That point of view is reflected in consideration of the following current range improvement issues.

Managing for sustainable development

The Forest Service role in range management includes not only conserving the forage resource but also providing for its use, now and in the future. There are many benefits from the range resource: support of a viable ranching industry, production of wildlife for consumptive and non-consumptive uses, and provision of an aesthetic setting for outdoor recreation such as trail riding.

The present level of management will not sustain current forage production nor continued development for industries dependent on range. Although creation of openings within the forest by logging is producing significant opportunities to expand the forage base, the range resource must be managed much more aggressively, including investment in forage production and structural improvements such as fences and trails, in order to achieve sustainable production. Settlement development is reducing available grazing not only through losses in subdivisions but also through controls on grazing of surrounding lands to satisfy demands of new residents. New roads through grazing lands, and increased traffic on all roads, compound problems of livestock control and increase the probability of collisions with livestock. Other land uses, especially logging, are encroaching on areas where cattle have had uncontested use.

The rancher is faced with integrating grazing operations with other uses, often facing limitations on the amount of forage available and higher costs of management. The wildlife manager feels similar pressures.

The wildlife-based and ranching industries are dependent upon limited forage. Forage production can be increased through conversion of marginal forest stands and other treatments but that will require major investment. Those treatments may also conflict with proposed silvicultural programs. The current issue of forage allocation to elk and cattle in the East Kootenay highlights the problems of sustainable development.

A land-use strategy is needed for sustainable development that recognizes the multiple dimensions of resource and land-use demands. Discussions of planning processes in this report suggest that the Resource Management Plans for Timber Supply Areas and Tree Farm Licences are suitable for developing such strategies if adequately integrated with regional and provincial objectives.

With a clear strategy a philosophical shift can be made from management as "costs" to management as "investment". Similarly, the costs of single-use developments must be considered before making decisions that affect other resource uses. For example, the long-term strategy for the ranching industry should state whether or not it is worthwhile to improve Crown forage production from the current, declining level of around 1 million AUMs, to a projected demand of over 1.3 million AUMs. Achieving and sustaining the larger target would require substantial, continuing funding by government and by resource users. It would also require decisions regarding land alienation to ensure that the returns on investment could be realized. The real benefits are measured not by increases in immediate revenues from grazing fees, but in terms of continued employment, community stability, and other social values that can be generated from a strategy for managing public resources.

Replacement of natural barriers

The expansion of road access and logging into previously undisturbed forested rangelands is presenting difficulties for livestock control. Where heights of land and dense stands of timber have provided natural barriers to cattle movements, the ranching industry has been able to achieve efficient use of

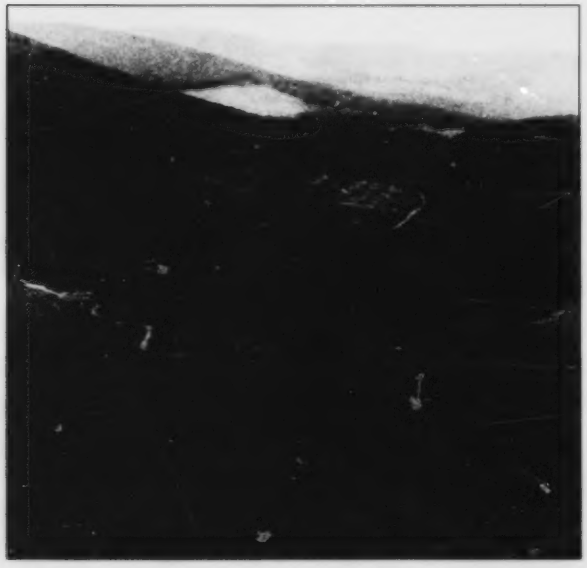
Rangelands provide habitat for non-game species of wildlife and non-consumptive users of the resource.

forage. A combination of range riding, judicious use of salt and creation of stock trails and drift fences, provided a low-cost system of livestock control with minimal loss of animals or mixing of stock.

Cutblocks and logging roads have opened the way for cattle to move freely from one range to another, often into adjacent watershed and beyond the rancher's control. The forage in the new forest openings attracts cattle, in some cases leading to damage to tree seedlings. Through placement of cattleguards at critical locations, roads can be made less passable but opening of forested barriers requires replacement with extensive fences. Where bark-beetle control has created continuous openings over thousands of hectares, there is a need for fences that may exceed 40 kilometres.

There are a number of options.

- Government, as landlord, could accept the costs as part of basic forest-landbase infrastructure. Considering that both industries are operating under government-approved tenures and plans, and paying for use, this is the recommended approach. With Government assuming responsibility, work can proceed with minimal delay, location and construction standards can be assured, and flexibility will exist to pursue less expensive solutions through integrated management planning.
- The forest industry could be required to construct fences. Firm criteria would be required to define fence locations.
- Ranchers could be required to construct any necessary fences as a condition of controlling their stock on Crown land. This approach seems to run against prevailing concepts of prior rights where existing users would be protected against disturbance by new developments (see the ELUC *Guidelines for Mitigation and Compensation*).



Clearcuts can increase carrying capacity of Crown range lands for wildlife and livestock grazing.

- Costs could be shared between the two industries under a good neighbour concept. This approach is gaining favour among resource users in localized planning areas. However, where the fences become expensive or extend over a number of operating areas, reaching mutually acceptable agreement could be very difficult.

Renovation of degraded community pastures

Some Crown land has been intensively developed as community pasture for livestock grazing. These areas have been cleared, disced and seeded, fenced and otherwise developed through joint funding between the Federal Government (ARDA/ARDSA), the B.C. Ministry of Agriculture and Fisheries, and ranchers.

Funding was to be split on a 45:45:10 ratio, although in practice the Province advanced the ranchers' share with the intent of recovering it later. An annual levy in addition to the grazing fee has been collected by most local livestock associations to pay management and maintenance costs. In most cases, the levy covers only management costs. No reserves have accumulated for maintenance and renewal.

Many of the community pastures need renovation, putting pressure on the Forest Service to provide more grazing on surrounding Crown land or to assist with improving the community pastures. The Forest Service has done some maintenance and renovation but to a limited degree and not consistently. Responsibilities for maintenance of community pastures need to be defined before major expenditures are made.

One option is to require the ranching industry to pay for renovation through an annual levy, plus any additional amounts required. The problem is that necessary work will not be done as quickly as needed, if at all, and there will be continuing pressure for more grazing and use of Crown land for agricultural purposes.

Another option would be for the Forest Service to accept responsibility for maintenance of community pastures either totally or under some form of cost-sharing agreement with the tenure holders. This would encourage more balanced decisions between enhancing community pastures and investing in Crown range. This option would require an agreement with the Ministry of Agriculture and Fisheries, and with Agriculture Canada on responsibility for existing structures. Future joint Federal-Provincial funding may be necessary.

Maintenance of range improvements

The value and use of British Columbia range resources are increased through millions of dollars of improvements including fences, water developments, stock trails and cattleguards. Provincial expenditures on improvements have averaged between $0.5 and $1 million per year over the past twenty years. This is closely matched by contributions from the ranching industry in labour and use of equipment. During the 1970s, another $19 million was put in by Federal and Provincial cost sharing under the ARDSA Agreement,

also supplemented by rancher contributions. Much of the expenditure, especially the ARDSA funds, went to fences. The structures are aging now, and many need repair or replacement.

An unwritten policy has been that the ranching industry would be responsible for maintaining improvements once they were constructed. Ranchers benefit directly from improvements and a case can be made for their financial responsibility. But there are also less-evident beneficiaries.

The Crown, for example, has been able to restore the badly degraded ranges of the early 1900s through controlled grazing. This would not have been possible without structural improvements; that is, fences and other barriers. Fences also provide a buffer between livestock and settlement or highways which encroach on rangelands. Integrated use of lands for timber production, ranching, wildlife, recreation and other pursuits is only possible with good infrastructure. It is often damage caused by non-livestock users that necessitates repair to range improvements. An example is fence damage by wildlife.

For maintenance of range improvements, one option is to make the ranching industry responsible for all maintenance and replacement. Structures of importance to a rancher would likely be repaired, but overall, there could be a gradual deterioration of the existing range infrastructure unless stringent maintenance standards are specified and enforced. Another option is for the Forest Service to fund maintenance and replacement under the same cost-share arrangements as for initial construction. This would need a clear policy statement. The Forest Service would retain control over the quality of range improvements. There would be greater freedom to respond to damage caused by non-ranching uses.

Co-ordination of knapweed control

Beginning in 1973, a major offensive was mounted on the Province's rangelands to counter the invasion of two knapweed species. Diffuse and spotted knapweed are now well-established on 80,000 hectares and pose a threat to all grasslands and dry forests. Although recognized primarily as a range weed, there is reason to suspect that knapweed also inhibits regeneration of forest stands.

There are two components to the knapweed control initiative: chemical containment and biological control. With chemical containment, Tordon is sprayed on localized patches where knapweed is expanding onto previously uninfected ranges. Where the plant is established over extensive areas, chemical containment is not considered feasible either environmentally or economically.

The long-term hope lies with introduction of insects that are natural enemies of knapweeds. So far, six species have been successfully established and are expanding their ranges naturally, through propagation, and through release. Although these insects have demonstrated that they can reduce seed production by up to 94% in favourable circumstances, effective control will require a reduction by over 97%. That will involve introduction of more species, especially in habitats which are not favourable to the currently established insects.

Overall knapweed control involves a number of government and non-government agencies:

- Forest Service,
- Ministry of Agriculture and Fisheries,
- Ministry of Highways and Transportation,
- Federal Department of Indian and Northern Affairs,
- Municipal Governments,
- private landowners.

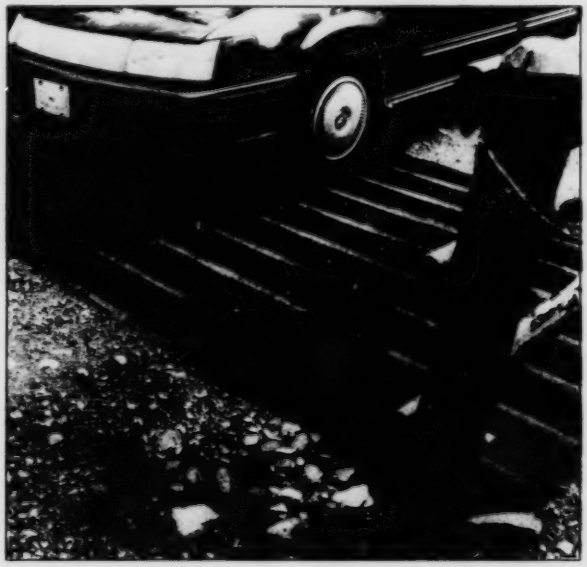
The Forest Service co-ordinated its biocontrol efforts internally and with the other agencies through a contractor, but that was discontinued in 1987. A Weed Co-ordinator position in Kamloops was relocated to other duties within the Region. At present, co-ordination is being achieved through various arrangements between Headquarters and Regional staff.

There are numerous problems. The workload placed on Regional staff is hindering achievement of other goals, especially in planning and audit. Decentralization of chemical containment for Districts with small weed programs is inefficient. Administrative control should be reviewed to reduce management overhead.

There is consensus within the Range Program that restoring effective control over knapweed and other weeds will require a specialist position. Also, an interagency committee is needed to co-ordinate control of knapweed and other range weeds.

Staff morale

Staff morale in the Range Program has been low in recent years. Morale, as defined in Webster's Dictionary, is a "sense of common purpose with



Cattleguards and fencing are required to replace natural barriers lost through logging.

respect to a group; level of individual psychological well-being based on such factors as a sense of purpose and confidence in the future". High staff morale results from effective programs with clearly defined objectives and purpose to which all are committed.

Participants in the Range Review have unanimously emphasized that the Range Program does not have a clear sense of mission and achievable goals. The ultimate purpose of the review is to remedy this. High staff morale could be achieved if all Range staff understand and share a common vision and have the authority and power to make it a reality. New legislation and policy will be required.

Two keys to increasing morale are better communication and recognition of individual effort. The Range Program Review has brought Program staff together to better understand the tasks and constraints of the work and has already increased levels of staff morale. Positive and timely Ministry response to the Review will ensure that morale will continue to rise.

Representation of client interests: Who is the advocate?

An advocate is "one that pleads the cause of another ..." (Webster's Dictionary).

Can the Forest Service be the advocate for the ranching industry while still being a credible spokesman for the range resource? The public interest in range resources encompasses livestock and timber industries, wildlife habitat, water quality, recreation, and other interests.

Any discussion about representation of client interests must distinguish between responsibility for managing the resource and the role of an advocate. The *Ministry of Forests Act* charges the Forest Service with the management of forest and range resources for the benefit of all British Columbians. The responsibility for range resources is therefore clearly that of the Forest Service. As steward of the Crown resources, the Forest Service is expected to maximize the benefits for all users. But rangelands administered by the Forest Service produce vegetation which has uses other than the production of forage for domestic livestock. These include wildlife habitat and forage, wild berries and mushrooms for human consumption, preservation of endangered natural flora, and ground cover for erosion control. The Range Program does not have a clear mandate for overall vegetation management but does attempt to consider the full scope of uses in planning decisions. In some Districts, for example, direct investments are made to enhance wildlife habitat.

Major resource allocation decisions are made at higher planning levels and representation becomes an issue. The main concern is for fairness in planning and management decisions. In local planning, direct participation by ranchers and other resource users provides a reasonably good balance. Ministry of Environment participation on behalf of wildlife interests is sometimes perceived to be over-weighted, but the problem has not been significant in most cases.

Timber interests are seen to be well represented both by forest companies and by Forest Service staff. For example, Timber Supply Area Steering Committees allow representation from all major licensees. Recently, the Ministry of Environment has obtained a seat on the committees, so wildlife interests are represented both for resource management and for advocacy. But neither the livestock industry nor range staff are formal committee members, nor is the Ministry of Agriculture and Fisheries represented.

Provincially, livestock interests gain a higher profile because of advocacy on the part of the Ministry of Agriculture and Fisheries as part of overall promotion of the agriculture sector. The limited number of Agriculture and Fisheries staff at the Regional level, however, inhibits direct participation in day to day range management.

The B.C. Cattlemen's Association has a clear expectation that range staff will promote their interests in resource allocation decisions. More direct involvement of the livestock industry in planning and management processes is required.

Direct involvement of ranchers and livestock associations in Timber Supply Area planning will enable more direct representation of their interests. So will participation in PreHarvest Silviculture Prescriptions. And Coordinated Resource Management Plans are, and will continue to be, very successful in ensuring equitable representation.

In the course of the Range Program Review, a number of participants expressed the view that it would be logical for the Ministry of Agriculture and Fisheries to represent the livestock industry at all levels, just as the Ministry of Environment represents wildlife interests. As more planning is done at the Regional level, and new interagency planning committees are established to promote integrated management of Timber Supply Areas, there is an opportunity to involve the Ministry of Agriculture and Fisheries to represent Provincial interests in the ranching industry.

As range staff are expected to be both livestock advocates and resource stewards in the broad public interest, it is difficult to maintain credibility with all interest groups. To renege on representing the livestock industry, however, leaves an imbalance in favor of wildlife interest through the advocacy of the Ministry of Environment. The preference for the Forest Service is to focus on stewardship. But there are logistical limits on how far the Forest Service can separate itself from client interests. The Forest Service will continue to promote the use of the range resource by the livestock industry for the socio-economic benefits that it confers on the Province, along with promoting a balanced mix of other used and their associated benefits.

Issues from the Forest Management Review

The Forest Management Review, published in January 1987, included the Range Program. That Review identified some major management needs which are still relevant. The Range Program Review provided similar conclusions. Observations and conclusions of the Forest Management Review, Issues 44 to 51, are listed below. A comparison of both sets of Review conclusions demonstrates the need for action.

(44) Weed containment and control are needed to maintain the range resource and to improve plant communities on problem sites.

Undertake more research on spraying and biological weed control for knapweed and other noxious weeds.

(47) Range management policies and procedures are inadequate.

Establish updated policies and procedures for range management.

(48) Current range inventories are needed to ensure conservation of the forage resource and for adequate planning, allocation and monitoring.

Long-term management of range resources requires an inventory that describes the vegetative composition, the range's existing condition, and the level of sustained forage yield that can be anticipated.

Develop a provincial plan. Conduct an inventory for range unit planning. Ensure that range use objectives and prescriptions are incorporated into existing Timber Supply Area and Tree Farm Licence plans.

(49) Improved monitoring is required for prescribed burning of forested and non-forested rangelands.

Implement improved range burn monitoring procedures for planned burns and wildfires that could result in forage production.

(50) An improved mechanism is needed to resolve forage allocation disputes between the Forest Service (and Lands) and the Ministry of Environment (and Parks).

Establish a task force with members from the above ministries to develop recommendations on how to better integrate interministry range and wildlife management objectives.

(51) Fees charged for the use of Crown range are inappropriate.

Range fees have remained relatively unchanged for many years, and are based on resource use only. Fees are tied to the livestock market and do not reflect costs of production, geographic location, fencing requirements or other factors affecting the price of forage. They also do not reflect the costs of processing applications, transfers or amendments.

Review the entire range fee structure. Revise the policy on industry and government obligations.

Synopsis of Working Group Reports

The terms of reference for the *Range Program Review* established nine working groups charge with the responsibility of detailed study of specific topics. Summaries of eight working group reports and the more recently formed group investigating Grazing/ Silviculture Interactions follow in this chapter. Each working group has prepared a more detailed report which describes relevant issues and recommendations. These reports will be available from the Forest Service.

Range Administration

Background

Decentralization of authority and responsibility to Districts in the early 1980s created a new structure for the Range Program. This has had major effects on the Program. In the following summary, Issues and Recommendations are identified in six categories: Organization, Structure and Function; Roles, Responsibilities and Workload; Government Operations and Administration; Delegation of Management Responsibility; Training and Education; and Extension and Public Relations.

Organization, Structure, Function

Issues

- Some Managers, unfamiliar with range administration, are exercising authority without consistent appreciation of policy and without seeking or using Regional staff advice.
- Integration of range management with programs of other resource agencies within the Forest Service requires improvement.
- Lack of defined policy or written management standards has led to widely divergent approaches to range administration and to inconsistent delivery of the Range Program.

Recommendations

- Introduce necessary organizational changes to improve delivery of the Range Program and to ensure accountability.
- Upgrade status and profile of the Range Program to make it effective within the Forest Service including changing the Range Section to Branch level.
- Improve communications and attitudes within the Forest Service.
- Establish better integration of programs with Ministry of Environment, Ministry of Agriculture and Fisheries, Ministry of Crown Lands, and with clients.
- Give additional responsibilities and authority to Section and Regions to provide consistent management standards. They must: conduct more audits and implement needed changes, have more control of budgets, allocations, and movement of unexpended funds in the Range Program, improve efficiency and effectiveness of manpower.
- Control staff redundancy by centralizing certain Program functions to Region or Headquarters. Similar staff positions in all response centres are not justified.
- Create some form of direct communication or reporting relationship between Range Section, Region and District range staff to achieve a consistant standard of range management and administration. Options include

  - give Regional Range Officers line authority over specific functions of the District Range Resource Officer;
  - return control of the whole Range Program to the Range Section and Regions;
  - station District Range Resource Officers in the field with decision-making power, but supervised by the Regional Range Officer;
  - create a new Range Authority or Commission or relocating to Ministry of Agriculture & Fisheries, Ministry of Environment, or Ministry of Crown Lands.

- Set up a Committee to study the advantages and disadvantages of any structural change or workload.

Roles, Responsibilities, Workload

Issues

- Some of the roles, responsibilities and authorities of staff at all levels of the Range Program are unclear. Definitions and priorities for stewardship are lacking.
- Priorities for range stewardship are not defined.
- Application of range management varies across the province because workloads vary from District to District and Region to Region and staff resources are not allocated in relation to workload
- Using a pool of generalist technicians in Districts is not working to the advantage of the Range Program.

Recommendations

- Define clearly and leave with government the responsibility for stewardship of the Crown range resource.
- Define roles and reponsibilities at all levels.
- Shift staff to match range workload to enable establishing a standard of range management province-wide.
- Designate Range Technicians to report to the District Range Resource Officer.
- Provide professional support from the Region or from adjacent Districts to Districts with a low workload.
- Establish training positions for new professional staff.
- Conduct a thorough workload study to determine if there is a need to increase to 2 agrologists in Districts with heavy workloads.

Government Operations and Administration

Issues

- The mandate of the Range Program, and its goals, objectives and policies are not always clearly defined.
- Lack of understanding of the Range Program causes confusion both within and outside the Forest Service.
- The range administration system is cumbersome in places, due to lengthiness of processes such as transfers of tenures.
- The mandate of the Range Program is not well defined with respect to livestock, wildlife, and other users of rangelands.

Recommendations

- Define the mandate to include forage and habitat for domestic livestock, wildlife and all other users of Crown range resources.
- Distinguish between roles of advocate (for interests) and manager (of the range resource). Establish how each role will be dealt with in all aspects of planning and administration.
- Define clearly the goals, objectives and administrative procedures of the Range Program and assign them throughout the organization.
- Develop consistent goals, mandates, policy and objectives of range resource management between the Forest Service, Ministry of Environment, Ministry of Agriculture and Fisheries and Ministry of Crown Lands.
- Relieve conflicts among agencies with additional Protocol Agreements.
- Prepare Program Management Plans to achieve program direction, funding and audit.
- Establish a committee to investigate water licensing, ranch transfers and Annual Report administration.
- Ensure support for enforcement of the *Range Act*.

Delegation of management responsibility

Issues

- Most range tenures holders are small livestock businesses and part-time ranchers who are unable to assume the full planning and management responsibilities that might be delegated by government.
- Range staff presently assume most responsibilities for forage management on range tenures rather than delegating to the ranching industry; there is a consequent staff cost for the Forest Service and limited flexibility in decision-making by the ranching industry.

Recommendations

- Consider delegating some additional responsibilities to the ranching industry.
- Focus additional responsibilities for the ranching industry and livestock associations on such activities as specific range improvements, more participation in planned grazing systems, and dialogue with the timber industry.
- Leave responsibility for the stewardship of the Crown range resource with Government.
- Contract certain aspects of Range Administration such as inventory, mapping, some weed control, and perhaps some range inspections.

Training and education

Issues

- Forest Service administration training is available, but does not cover all topics relevant to range management.
- Untrained agrologists are entering the Forest Service with full responsibility in a District Resource Officer position.
- Inexperience coupled with organization and role problems already identified create a barrier to guidance from experienced regional staff and Range Officers in other Districts.

Recommendations

- Provide range science training and education to promote better range management methods.
- Give higher priority and additional funding for specialized range courses, range updating and field trips.
- Encourage out-of-province travel to promote better range management and administrative ideas. Encourage inclusion of Range Management with Wildlife and Forestry aspects in B.C. university curriculums.
- Improve opportunities for career advancement.

Extension and Public Relations

Issues

- With the timber industry taking more responsibility in timber management and rancher contact, more extension is required to help the ranchers and timber companies deal with each other.
- Individual ranchers do not have the funds to employ professional agrologists so will continue to require advice in preparing range management plans and in dealing with other range users.
- There is a lack of understanding by the general public, wildlife groups, and environmental groups of the Range Program mandate.

Recommendations

- Provide extension and public relations services to make industry and the general public aware of the Range Program.
- Increase timber company and forester working knowledge of range management.
- Provide better public relations in conjunction with B.C. Cattlemen's Association, local Livestock Associations, Ministry of Agriculture and Fisheries, Ministry of Environment, Regional Districts and other government and non-government organizations.

Range Management Policies

Background

The review of Range Management Policy included interviews with more than seventy-five Forest Service staff from throughout the province, and two meetings with the Policy Committee. The Policy Committee included representatives from the Forest Service, other ministries, and resource user groups.

The *Range Act* was reviewed on a section-by-section basis. Detailed recommendations were made. The three approved policies and all draft policies were reviewed. The grazing tenure system and grazing leases were also reviewed.

Issues

Range Act

Some sections of the *Act*, such as Section 9.2a and Section 19, are impossible to administer. Other sections need re-writing to resolve unanswered questions.

Examples:

- do we manage for all forage, only livestock forage, or all forage only where livestock and wildlife compete for the same range?
- if the Ministry is responsible for both livestock forage and wildlife forage should the Forest Service have enforcement power to limit wildlife populations?
- do any tenure holder rights exist on expiry of permits? Should they exist?
- who pays compensation for deletions from tenure areas?
- what enforcement procedures are available to the Ministry?
- should tenure holders have to own all, some, or any livestock?

Many other corrections are needed to update and streamline administration of the *Act*; in fact, a complete re-write is in order.

Range Policies

It is impossible to manage the resource in a fair and consistent manner without formal, written policy. This lack of clear guidance lowers staff morale in the Districts. Public perception of Ministry decisions is poor.

The intent behind government policies is as important as, or more important than, the policies themselves.

Over the past five years, attempts have been made to draft a number of policies, resulting in only three completed policies and seven drafts.

Grazing Tenure System

There are two main thrusts to the review of tenure policy:

- how to reduce the number of short-term permits;
- how to increase delegation of responsibilities to tenure holders.

In 1986/87 only 17% of tenures were issued as licences because:

- Ministry staff are reluctant to issue licences which they perceive are not flexible enough to allow for management changes;
- lack of incentive, no advantage is seen to a licence.

It is difficult to make a general statement on increasing responsibilities of tenure holders. For example, the magnitude of wildlife impact on the forage resource, especially elk, has broad regional variation. Assignment to the rancher of additional responsibility for range management must consider that others also use the resource and may benefit from rancher management efforts. Little more can be delegated to the rancher. Further possibilities might include record-keeping, planning, and interactions with timber companies.

Grazing Leases

Grazing leases were issued to enable long-term development and use of Crown land for grazing purposes. The legislation under which the Forest Service operates does not include leased lands but plans for grazing on leases are approved and monitored on behalf of the Ministry of Crown Lands. This management of grazing leases creates a significant workload in a few Districts, but this work is generally not recognized in staffing and funding allocations. Most grazing leases in the south of the province are on sensitive and fragile range which requires careful management. The present administrative agreement with the Ministry of Crown Lands is not satisfactory to the Forest Service.

Recommendations

- Rewrite the entire *Range Act* as soon as possible, following circulation of a discussion paper which reflects the wishes of government and gives clear direction on how it wishes the forage resource to be managed.
- Give the highest priority to developing policies, procedures, and an instructional manual so that staff and industry clearly understand what is expected of them. Division of responsibilities between resource user groups, and government

must be addressed. New policies must be preceded by a clear position paper, outlining the purpose of the Range Program.

- Assign one or two senior Range staff, with extensive field experience, to draft policy, procedures, and instructional manuals. The resulting drafts should be reviewed by a policy committee, then by other parties. These staff should be assigned a firm timetable outlining deadlines for policy drafts. This timetable will commence following completion of the Strategic Plan and include clear instructions from the Manager of the Range Section stating the Ministry's intent.
- Make licences more flexible. (Specific recommendations are made in the Working Group report.) Once changes to licensing are final, a detailed training package should be given to District staff, to counter their many misconceptions about licences.
- Encourage conversion of permits into licences. Incentives might include:
  - minimum administration charge per tenure renewal;
  - higher ground rent charge for permits than for licences;
  - increased flexibility of a licence compared to a permit;
  - reduced rights and security of permits.
- Give responsibility for record-keeping, planning, and resolving problems with timber companies to range licensees in accordance with the above incentives.
- Establish a three-person tribunal, under the range appeal procedures, of two B.C. Cattlemen's Association appointees and a regional Range Officer, to hear grievances and make recommendations to the Regional Manager.
- Give the entire responsibility for grazing leases either to the Ministry of Crown Lands or to the Forest Service. If the Forest Service is to assume the responsibility, it must be accompanied by the necessary legislation, funding, and staffing to handle the workload. If the leases return to the Ministry of Crown Lands, staff agrologists in that Ministry could review and approve management plans, or they could require lessees to provide a management plan signed by a Registered Professional Agrologist from the private sector. This would give some protection to the range resource yet free Forest Service staff from this additional workload.

Economic Perspectives on Range management

Background

The Economics Working Group took a broad view of user interests in range. The Group reviewed the Range Program from three perspectives:

- effectiveness of resource allocation
- efficiency of resource use
- resource taxation.

In addition, three consulting groups documented significant economic values for wildlife, livestock and other resources dependent upon finite forested and non-forested rangelands. The consultants also examined future livestock needs for rangeland use, and livestock grazing fees.

Within the time constraints of the Review, the studies could not provide conclusive results. Therefore the Working Group recommendations focus on issues that need further review.

Issues

Resource Allocation

Allocations of Crown land and Crown land resources among various users (including woodfibre, livestock, wildlife, recreation and other interests) largely consider historical use patterns and future opportunities. Prices for permits, licences, and leases that provide various rights to the Crown lands or range resources are not determined in the market, do not necessarily reflect market values, and do not provide a basis for a market-based allocation of resources. Observations on the effectiveness of the current administration system for allocating the resource among users are as follows.

- Range use targets do not exist for many interest groups. The plans of resource users other than timber are not adequately included in the TSA process.
- The economic value of range in integrated uses has not been determined. In the absence of prices, data or economic analyses which reflect economic value, the allocations of range largely reflect the negotiating power of user groups.
- Mandate and responsibilities of ministries, related to allocation of land resources, are not clearly defined. Within the government, responsibilities are divided among the Ministries of Forests, Crown Lands, Environment, Tourism, and Agriculture and Fisheries.
- There is inadequate coordination and sharing of information among the users of range. And only a little would be needed to vastly improve integrated management of the resource.
- There is no effective mechanism for assessing the needs and availability of range; nor for deciding and coordinating the allocation of resources among users.
- Recognition of the combined needs of wildlife, livestock, and other non-woodfibre users will give these users a more effective voice in TSA planning and other planning.

Resource Use

Most available information relates to domestic livestock use of range. Grazing fees do not reflect costs. Efficiency of rangeland use for livestock grazing is unknown. Some observations are:

- Permits for grazing do not confer long-term tenure to the holder, and licences do not confer rights equivalent to Ministry of Crown Lands grazing leases. Livestock interests think that this affects the ability and willingness of ranchers to obtain financing and to make long-term investments and improvements to the range.
- Based on projections made by consultants (the Talisman Report, Appendix 3), an increase in range forage will be needed over the next five years for the growth potential of the beef industry to be realized. This will require sizeable investment.
- Inadequate compensation procedures for deletion of areas and reduction of authorized AUMs from existing tenures or from replacement tenures are also major deterrents to investment.
- Wildlife groups perceive that not issuing long term tenures for wildlife use inhibits investment in range improvements.
- Conferring more rights to forage for livestock could decrease the quality and quantity of forage for wildlife and subsequently the value and use of wildlife. The converse is also true. The lack of forage inventories makes assessment difficult.
- Replacement and maintenance of existing improvements are required. Lack of appropriate incentives to the private sector means government funding is necessary.
- The flat fee charged throughout the province for grazing permits and licences is not an incentive for efficient use of the resource. However, the administrative practicability of variable fees has been questioned.
- Several factors affect the value of range: the proximity of range to base ranch properties, local demand for all users, season of use, etc.
- Lack of planning resources, adequate plans and regulations for use of Crown lands inhibits development and improvement by users.

User Charges

The Working Group spent considerable time addressing the issues of the value of Crown range to different users and to the provincial economy, and the basis of a fair return to the provincial treasury for its use. Two of the consultant reports focused on these issues, but further work is required. The Working Group notes that:

- User charges lack consistency. More information is needed to relate costs to users and size of authorized use. Approximately 50% of tenures are for less than 200 AUMs. This substantially increases the cost of administration.

- Cost recovery may not be a good basis for setting range fees. Values are needed that relate fees and services to industry development strategies and potential, and their economic worth.

Recommendations

- Establish a mandate that defines range management relative to: what Crown range is, who it is for, management responsibility, user responsibility, economic development, and resource conservation objectives.
- Define and establish an allocation process based on values of resources in relation to competing uses. It should be based on the TSA framework, but the Provincial government should establish regional targets based on consultation with users.
- Establish Regional and Headquarters procedures for coordination of all user plans, and of range management by users and ministries.
- Create a provincial-level decision-making body that would include representation of timber, wildlife, agriculture, water resources, recreation, tourism, other users, and relevant ministries.
- Develop policy and procedures for data collection and economic analysis.
- Obtain better information on the costs of range management relative to the amount and value of use. Include a breakdown of user costs and government costs.
- Use the data to assess socio-economic benefits and values of the range resource. This information should form the basis of input into the resource allocation process.
- Investigate options for allocating forage between livestock and wildlife including planning processes and issuance of tenures.
- Clarify the government objectives for range fees.
- Review fees related to range use.
- Conduct a similar study to the Talisman Report to project the growth potential and range needs for the wildlife industry over the next five years.
- Review needs, costs and benefits for all resource uses.
- Evaluate forage allocation in terms of values generated by all forage uses.
- Explore investment in, and use of the range for all range users.
- Evaluate rangeland management programs in neighboring provinces and states. Look at tenure, range fees, roles and value of other resources of Crown rangeland, and government and private contributions to range maintenance and improvements.
- Consider ways to encourage more private sector investment in range maintenance and improvements.
- Obtain better information on contribution by users to construction, repair and maintenance and replacement of structural and non-structural range improvements.
- Review the allocation of both staff and funds among response centers (Headquarters, Regions, Districts). Consider the differences in animal populations, other uses and users, and the technical and economic opportunities that exist in the Regions identified through the planning process.
- In reviewing the above, include the workload associated with improving economic considerations in range management: budget, planning, research, policy and evaluation.

Noxious Weed Management

Background

Knapweed infestation is estimated to reduce forage production by almost 90%. With over 60,000 hectares currently infested provincially, gross annual losses to the domestic livestock industry from knapweed are projected to be $2,700,000 (1989 dollars). With over 1.1 million hectares susceptible to knapweed, potential losses are substantial including losses to other resources such as wildlife and recreation.

Losses attributable to other major noxious weeds are not well documented but are probably increasing with the expansion of infested areas. The effects of noxious weeds include poisoning and associated livestock health problems, displacement of important forage species, and loss of benefits by other range resource users.

To combat these weed problems, a noxious weed management strategy was established jointly in the mid-seventies by provincial and federal agencies, with private sector support. The strategy consisted of two distinct components:

- noxious weed containment using chemical or mechanical means to prevent further expansion of weed infestations;
- classic biological control using natural host-specific insects or other parasitic organisms to control the weeds.

The major emphasis of this strategy has been to contain and control spotted and diffuse knapweed, but not to the exclusion of control programs for other weeds. In general, the strategy implemented cooperatively by the Forest Service and the Ministry of Agriculture and Fisheries, with Agriculture Canada and the B.C. Cattlemen's Association has been relatively effective to date. However, inconsistent levels of funding for containment and control activities has to some extent hampered the success of the program. Likewise, there has been inadequate and inconsistent provincial coordination of Forest Service noxious weed management activities.

This problem is partially due to the elimination of the Weed Coordinator position within the Range Program. While this function has been assumed over the last two years by an ad hoc inter-agency committee, the need for consistent coordination and the re-establishment of the Weed Coordinator within the Range Program is critical according to all participants in the weed management review.

Since the implementation of the multi-agency noxious weed management strategy, communications between agencies has been relatively good, particularly at the technical level. Effective cooperation between participants occurred through direct communication and through the inter-agency Knapweed Action Committee. However, with the committee's demise in the early 1980s, poor communication of the goals and objectives and a steady deterioration of activities of agencies and private-sector groups involved in the management of noxious weeds have been the result.

Determining the relative success of noxious weed management efforts requires collection and evaluation of information on the response of weeds to various management prescriptions.

While some information on the containment and control of weeds has been collected, no consistent effort has been made to monitor the overall response of knapweed and other weeds to management intervention. While it is evident that efforts to control and contain weed infestations have been effective, there has not been a standardized approach to monitoring nor is there enough quantitative information to determine the success of noxious weed activities. The Review showed that a standard, practical approach is needed to monitor weed management control and containment activities.

Issues

The following noxious weed management issues are derived from an analysis of responses by a large group of government and industry representatives to a questionnaire.

- Noxious weeds pose a major threat to the health of provincial rangelands. While the primary threat is from spotted and diffuse knapweed, other weeds such as Canada thistle, houndstongue and dalmatian toadflax pose significant problems.
- There is insufficient provincial coordination of noxious weed containment and biocontrol activities on rangelands.
- Annual funding by the Forest Service for noxious weed management activities is inconsistent, particularly at the Region and District levels.
- Training of field staff in the identification and management of noxious weeds is inadequate.
- Communication of Forest Service noxious weed management goals, objectives and activities to the general public is inadequate.
- There is perceived overemphasis on knapweed to the detriment of other weed problems in Forest Service noxious weed management activities.
- Monitoring of Region and District noxious weed management activities to determine overall program effectiveness is inadequate.

Recommendations

- Re-establish the Provincial Noxious Weed Coordinator position within the Range Program. This person should establish goals for weed containment and biological control, perform extension of research results, assist in training technical staff, and provide expert advice on noxious weeds and the control program.
- Obtain a firm commitment from the Forest Service to the noxious weed control program, complete with stated goals matched by reliable funding for the term of the

program. Forest Service weed control crews are the recommended choice over private contractors for cost-efficiency reasons.

- Form a Noxious Weed Action Committee (or re-activate the former Knapweed Action Committee, expand its mandate and rename it). Prince George and Prince Rupert Regions must participate to ensure full provincial recognition of weed information exchange and goal development.
- Require enforcement of the existing Noxious Weed Control Act by Ministry of Agriculture and Fisheries on private lands with noxious weed infestations.
- Require participation of the Ministry of Environment with manpower and funding to assist in attaining weed control goals.
- Update the Forest Service Range Program weed identification manual; establish weed specimen herbariums; provide educational opportunities and training of Ministry staff, particularly in biological control.
- Enhance extension and other public awareness of noxious weed problems.
- Include noxious weed control measures in PreHarvest Silviculture Prescriptions for access roads and landings.
- Continue development of biological control agents for other noxious weeds than knapweed, and rehabilitation of all areas on which weed control has been achieved.
- Clarify the noxious weed control roles of Headquarters, Region and District staff to assist in efficient program delivery.

Inventory, Monitoring and Research

Background

Data collection for review of Inventory, Monitoring and Research was done by questionnaire to all Forest Districts, plus a three-day Working Group meeting. The Working Group had representatives from:

- Forest Service Headquarters, Regions and Districts
- Ministry of Environment
- Ministry of Agriculture and Fisheries
- Agriculture Canada
- B.C. Wildlife Federation
- B.C. Cattlemen's Association

The questionnaire was sent to all Regions and Districts. It outlined an inventory proposal and requested suggestions for research priorities by topic. Over 90% of the questionnaires were completed and returned.

Significant problems exist in successfully carrying out the Inventory, Monitoring and Research Subactivities. The primary problem is a serious communication breach between Branch, Region, and District, resulting in a lack of direction and consequent lack of executive support.

Inventory

Inventory is defined as the quantitative or qualitative measurement of the resource available for use. This information is necessary to make informed decisions regarding the allocation and use of a finite resource.

Issues

- There is a lack clarification of the roles and responsibilities of Integrated Resources Branch and Inventory Branch staff with respect to range inventory activities.
- There is no effective and comprehensive provincial range inventory.
- There is no consensus on range resource inventory methodology.
- There is a need to complete range administrative boundary and improvement mapping, particularly in the Kamloops, Prince George, and Smithers Forest Regions.
- There is a lack of standards and procedures needed for source map preparation and map updates.
- Data bases of the Forest Service Inventory and Research Branches, and Ministry of Environment are not compatible.

Recommendations

- Clarify roles and responsibilities of Inventory and Range Program staff for range inventory.
- Reaffirm responsibility for range inventory to Integrated Resources Branch, as the Forest Service range inventory expertise resides there. Additional expertise can then be purchased from Inventory Branch.
- Provide basic inventory for all Districts, with funding from Branch level for delineating:
  - administration boundaries of stock range, range unit, pasture,
  - topographical and natural barriers,
  - local geographical names,
  - structural and non-structural improvements, but not burning or seeding,
  - known sample locations.
- Provide detailed vegetation inventory on specific sites at discretion of the local manager. (Funded at the local level.)
- Provide procedures and use them.
  - Develop a training package for District and Regional staff, as soon as procedures are complete.
  - Complete development of standards and procedures for basic range resource inventory
  - Complete the "Cranbrook" inventory pilot project.
- Develop and share between Ministry of Forests and Ministry of Environment a common data storage and retrieval system for inventory and for monitoring.
- Develop a contractors list for detailed inventory projects.

Monitoring

Monitoring is regular assessment of a situation or management regime which provides information on the success of a management decision. Most of the problems associated with habitat monitoring have been solved with the recent development of a Ministry of Forests/Ministry of Environment *Habitat Monitoring Handbook*. But other needs have been identified.

Issue

- At present, insufficient Range monitoring is being conducted.

Recommendations

- Develop procedures to assist local managers in defining monitoring requirements.
- Train Region and District staff by forming a team from the Habitat Monitoring Committee to instruct staff in its use.
- Develop a standard data collection form. Refer to the Handbook Development Committee.
- Establish a provincial series of exclosures to assess long-term range condition and trends. Survey existing exclosures and their documented history, in cooperation with Agriculture Canada, and the B.C. Ministry of Agriculture and Fisheries.
- Develp a common data storage and retrieval system for Forest Service and Ministry of Environment data monitoring.

- Develop procedures and guidelines (including deadlines for achieving them) to assist District managers in defining the required level of monitoring.

Research

Research is experimentation aimed at:

- the discovery of facts,
- revision of existing theories or laws in light of new facts,
- the practical application of new theories or laws.

Range research is necessary to provide information for proper management of the resource and satisfaction of all resource users.

Issues

- The present process of the Regional Research Advisory Committee/Provincial Research Advisory Committee (RRAC/PRAC) does not ensure that range research priorities are recognized at the provincial level.
  - Range research program needs are not recognized through RRAC/PRAC.
  - RRAC/PRAC research priorities are not clear to clients.
  - There is a lack of communication among Branch, Region and District staff in identifying range research priorities for RRAC.
- No procedures exist to identify, update and evaluate range research priorities.
- Poor communication of research results.
- Not enough expertise available for range research needs within the Ministry Research program.
- Too little funding for range research.
- Funding allocation does not match research priorities.
- No information on management practices for northern B.C.

Recommendations

- Establish research advisory committees with range users as members, to identify, update and evaluate range research priorities.
- Appoint a coordinator at Integrated Resources Branch, to identify and organize research needs.
- Provide funding through Integrated Resources Branch.
- Reallocate one position to provincial range research in the northern forest regions.

Range Improvements

Background

Rapid development in the past ten years of timber, range, and other resources on the same land base requires major improvement to range infrastructure in order to integrate resource uses. For example, particularly in southern and central B.C., logging is eliminating natural timber barriers that have traditionally separated cattle herds in adjacent valleys. More fences are now required. Northern and other remote areas of the province are still pioneering in the livestock industry and lack basic fencing, cattleguards and other infrastructure to manage Crown range to its full potential.

The old *Grazing Act* required the Crown to return fifty percent of gross range revenues for range improvements. This funding was used to assist construction of the basic infrastructure needs for range resource management.

The current *Range Act* does not contain that provision. Crown range improvements are now funded through voted appropriations and other special funding such as the ARDA/ARDSA program which provided $19.2 million between 1976 and 1984. That money was spent on 320 range units out of 1040 or 30% of rangeland units used by livestock and wildlife.

The Crown currently invests in range improvement through the Range Program to assist generation of local revenues from the livestock industry. However, the actual value of creating and maintaining Crown rangeland must be determined so that provincial cost sharing can be quantified and specifically demonstrated.

Issues

- The current cost-share arrangements under which the livestock industry invests in development of range is negotiated on an individual basis.
- Past policy and industry agreements have established expectations that the Crown will participate in most projects with long-term goals.
- The Crown benefits as much as the user from most range improvement.
- Range improvement benefits are difficult to fully quantify.
- The amortization period for most range improvements is longer than the usual repayment period for most sources of operating credit.
- The tenured user lacks measurable range property rights.
- The current *Range Act* provides limited protection for range improvements constructed by the licensee.
- The user's highest priority for investment is on the user's own property.

Recommendations

- Adopt a formal cost-share approach to funding range improvements based on a landlord concept. This concept emphasizes cooperation between Crown and range user for management of range resources and integration with other Crown resources to sustain a livestock industry
- Make the range user responsible for:
  - cost sharing construction of agreed range improvements or practices which significantly benefit the user's operation;
  - range improvements constructed for user convenience, such as corrals and cabins;
  - all annual maintenance of range improvements.
- Make the Crown responsible for:
  - minimizing disruption to established range management systems by resource development or land alienation;
- cost sharing development of projects which significantly benefit the Crown's interest in the range resource.
- Consider the following changes in legislation and policy:
  - accurate definition of benefits from range improvements to all users and to the Crown;
  - recognition in the compensation portion of the Act of the depreciated value of range improvements when land area is deleted from an agreement.

Livestock / Wildlife Interactions

Background

Throughout British Columbia, domestic livestock and wildlife are dependent upon rangelands for forage and other habitat requirements. Accordingly, the disciplines of wildlife management and livestock management have as a common goal promotion of sustained yield and conservative management of rangeland resources.

However, the limited supply of rangelands coupled with increased demands for the use of range resources have created a number of issues which negatively affect livestock and wildlife interests. Some issues are common problems, such as unmanaged forest succession or noxious weed infestations resulting in loss of available forage. Direct conflicts arise where domestic livestock and wild ungulates compete for the use of limited range.

In an effort to resolve some of the common problems and direct conflicts, the Ministries of Forests, Agriculture and Fisheries, and Environment, with the endorsement of the B.C. Cattlemen's Association and the B.C. Wildlife Federation, have initiated a cooperative project. The objectives include:

- defining and evaluating the nature and extent of issues negatively affecting livestock/wild ungulate interactions on Crown Rangelands;
- identifying new policies, procedures, inter-agency protocol agreements and other strategies which may help to resolve livestock/wildlife issues.

Issues

- Absence of a long-term government strategy for the management, conservation, protection and integrated use of rangelands.
- *Ad hoc* changes in status of Crown lands which negatively affect range and wildlife management activities.
- Loss of rangelands and associated forage base to natural forest succession.
- Absence of a government strategy to allocate forage to livestock and wildlife.
- Livestock introductions and wildlife transplants.
- Predation.
- Inadequate government funding for prescribed burning and other forage enhancement activities.
- Lack of unified approach to rangeland classification, inventory and resource use zonation.
- Long-standing conflict between livestock and wildlife interest groups.

Recommendations

- Have the Forest Service promote an integrated resource management planning process at the local level.
- Have the Forest Service include range, timber, wildlife and other resource interest groups as active participants at all levels of integrated resource planning.
- Have livestock and wildlife industries and associated government wildlife and range management agencies agree to manage in accordance with the land and resource-use targets established in the Forest Service Resource Management Plans.
- Process livestock and wildlife introductions on rangelands through the Resource Management Planning process to evaluate the impact on other resources and their users.
- Have Range and Wildlife Management staff cooperate in rangeland classification, forage inventory and monitoring to provide resource information upon which forage allocation and other management decisions can be made.
- Make a government commitment of Range and Wildlife agencies to fund and participate cooperatively in forage enhancement activities where mutual benefits may be realized.
- Review and coordinate Ministry of Crown Lands, Forest Service, and Ministry of Environment land and resource management activities.

Range Planning

Background

Resource planning is an essential process in the management of forest and rangeland resources. Planning should balance use at the regional, local and program levels with the capability of the land, its resources, and with management objectives.

The primary goal of Range Resource Planning is to fully integrate management of range with management of other resources. The objective is to assist in developing and applying an effective integrated resource planning format and to assist in achieving the goals and objectives of the Range Program.

The Forest Service has developed a multi-level resource planning process, in accordance with its mandate of integrated management of forest and rangelands. This process includes Timber Supply Area Plans, local Resource Use Plans and single resource management plans.

The objectives of the Planning Working Group were to:

- define the goals and objectives of range planning;
- provide a synopsis of the Forest Service planning process and how range staff can contribute;
- identify range resource planning issues;
- develop a framework and minimum standards for range resource planning as a part of the Forest Service planning process, then identify associated activities;
- make recommendations to improve range resource planning.

A list of 47 questions relating to planning issues and the Terms of Reference was developed into a questionnaire. The 45 responses to the questionnaire were summarized, and the answers, with the professional expertise of the Working Group, and literature currently in use, form the basis of the following information.

Issues

- There is a need to address range in the context of an integrated planning framework, which takes into account all user needs and the capacity of the resource. The planning framework should ensure active participation by all users and managers.
- There is a lack of definition in the relationship between timber and range managers, their financial obligations, their rights, and a mechanism to ensure that integration in the field occurs to the benefit of both resources.
- It is apparent that guidelines defining the minimum acceptable standards for conducting various levels of planning are not available. Also lacking is the logistical support required to meet desired standards.
- Range planning has suffered and continues to suffer from lack of commitment to the planning process by agencies and resource users.
- Generally, range staff are working with inadequate, outdated, or non-existent range inventory information.
- Demand for forage is generally not adequately addressed at any level of planning.
- Most planning efforts are biased toward a single resource user rather than being fully integrated.
- Many planning attempts are not fully addressing and resolving a number of key resource issues.
- After initial planning, problems often arise with required implementation and monitoring.
- Range User Plans are not in place for a majority of range tenure holders. Opinions vary as to whether or not a standardized format will facilitate development of Range User Plans.
- Guidelines defining terms of plans or required review periods do not exist for many planning systems.
- While the regulatory requirements for PreHarvest Silviculture Prescriptions provide the opportunity to accommodate existing integrated resource use plans, range management concerns and public input, there are several areas which need clarification.

Recommendations

- Develop an improved Integrated Resource Planning format which provides fair consideration of range and other non-woodfibre resources. The draft framework, process, and minimum standards for range planning should serve as the basis for discussions. The proposed planning format should be one with which all resource users and managers are comfortable.
- Provide necessary resources in funding and staff to achieve minimum range planning standards.
- Support upgrading of an inventory system that will provide adequate information for range planning.
- Participate in inter-agency collection and provision of inventory and other information needed for the management of range, wildlife, and other resources.
- Establish minimum standards for monitoring and enforcing range management plans and supply the resources necessary to meet these standards.
- Recognize that in most instances, the Range Management User Plans should be prepared by the rancher and the Range Agrologist, and that these plans should be developed to acceptable minimum standards which are flexible enough to accommodate most ranching operations.
- Establish an inter-agency committee to provide training for integrated resource management planning.
- Ensure that the PreHarvest Silviculture Prescription referral system is complied with and gives adequate recognition to the range resource.
- Establish a method to effectively and accurately determine the demand for range.
- Rename *Timber Supply Areas* by legislation to become *Resource Management Areas*.

Grazing / Silviculture Interactions

Background

In response to concerns expressed by ranching and forest industry representatives, the Chief Forester initiated an additional project for the Range Program Review.

The object was to determine the nature and extent of issues related to part 10.1 of the *Forest Act* and its impact on grazing/silviculture interactions. The process involved internal staff discussions as well as joint discussion with Forest Service, ranching and forest industry representatives.

Further objectives were to identify reasons behind the issues and cost-effective, practical solutions.

Issues

- Liability for cattle damages to plantations.
- The removal of natural barriers through logging and its impact on the control of livestock movement.
- Insufficient data as well as a lack of standard guidelines and procedures for the assessment of cattle and other animal damage on plantations.
- Inadequate integration of range and timber plans at all levels of Forest Service planning.
- Inadequate promotion of an integrated resource management planning process at the local level by the Forest Service.
- Inadequate definition of minimum standards and user responsibilities in grazing tenure documents and plans.
- Deficiencies in guidelines governing range input in PreHarvest Silviculture Prescription plans.
- Need for more stringent enforcement of regulations dealing with noncompliance of grazing regulations.

Recommendations

- Have the Forest Service acknowledge its role as steward of the range resource and its responsibility to promote conflict avoidance through sound planning and management.
- Ensure that representation from both regional Range Program staff and ranching industry on planning committees (E.G. TSA steering committees) is implemented immediately.
- Ensure that Range Program and ranching industry issues, goals, objectives and strategies are considered equally in all Resource Management Plans.
- Define minimum standards for range resource planning input.
- Revitalize a CRMP-type planning process at the local level.
- Develop more stringent enforcement of regulations and impose penalties for rancher and forest licensee noncompliance and poor management performance.
- Consider the feasibility of modifying Forest Service regulations and tenure documents to enable binding decisions to resolve issues of liability when other means of resolution fail.
- Promote review of grazing management plans and 5-Year forest development plans. Allow plan revisions only if the obligations in the original plan documents are fulfilled.
- Develop guidelines for assessing cattle and wildlife damage to tree seedlings and conduct a survey of Forest Districts where cattle/reforestation problems occur, to accurately determine the extent and severity of the damage.
- Ensure Range Program staff provide training on an ongoing basis to range licensees in the preparation of grazing management plans and in the evaluation of timber management plans and PreHarvest Silviculture Prescriptions.

Public Comments on Program Performance

Public Comments on Program Performance

In January 1989, a discussion paper was prepared, highlighting the terms of reference for the Range Program Review. It was sent to interested government agencies, non-government organizations, and made available to the general public. A news release under the Minister's name was picked up by some news media based in the interior of the Province. It invited interested parties to obtain copies of the discussion paper from their district Forest Service offices. The paper was also sent directly to about sixty organizations and individuals who were known to share concerns about the state of the Range Program in British Columbia.

Fifty-five responses were received by the deadline of 9 March 1989. They came from a variety of sources.

- Thirty-two responses came from representatives of the cattle ranching industry, including:
  - the B.C. Cattlemen's Association (BCCA),
  - local livestock associations,
  - eleven individual ranchers.
- One response came from the Interior Lumber Manufacturers' Association, representing the timber industry.
- Ten responses came from parties interested in consumptive and non-consumptive uses of wildlife, and protection of free-roaming horses.
- Several responses came from government agencies, including:
  - Ministry of Parks,
  - Ministry of Agriculture and Fisheries,
  - Ministry of Environment,
  - regional districts of Fraser-Fort George, Thompson-Nicola, Fort Nelson-Liard, Bulkley-Nechako,
  - Canadian Wildlife Service.
- Four non-aligned individuals with general interest in range management.

Interpretation of the submissions requires caution. Many from the cattle industry resulted from effective encouragement by the BCCA to respond. In contrast, the timber industry did not appear to have requested their membership to respond, and only one submission was received. Submissions from government agencies serving as advocates for wildlife and domestic livestock were received, but none came from government agencies that promote the use of timber or other resources found on rangeland.

The sample of respondents was not representative of all range users. Accuracy of some submissions is doubtful, but factually inaccurate statements may be a reliable reflection of the contributor's opinion.

A number of concerns and recommendations were presented in the submissions. The most frequent ones are described below.

Grazing Fees

The most frequently addressed issue was that of grazing fees. Most comments came from representatives of the cattle industry. They feel strongly that increasing grazing fees would impose great hardship on them, that current fees and the procedures for calculating them are fair, and that if they *are* increased the new funds received should be used for range improvements. Most responses representing the cattle industry concluded that a fee increase would create major financial difficulties at a time when the industry is not prospering.

Arguments against increased grazing fees included the following:

- The livestock industry is a major and positive factor in the B.C. economy. It generates $600 million in direct sales of beef. The government takes a fair return from the taxes generated by these sales.
- The ranching industry invests heavily in construction and maintenance of range improvements on Crown land. This increases the value of Crown assets, and is beneficial to many other range users and the general public.
- When compared to the quality of forage and the rights of tenure holders in other jurisdictions, the grazing fees in B.C. are not too low.
- It is unfair for only ranchers to pay for use of the range when the benefits they pay for go to all range users.
- If grazing fees are raised, most ranchers will take the position that:
  - the Government should pay for the capital cost of range improvements and at least some of their maintenance.
  - the Government should collect fees from all range users including recreational users, hunters and users of off-road vehicles.
  - fees should vary according to regional range productivity and according to other conditions such as predation and weather. These conditions may affect the profitability of raising domestic livestock.
  - the ranchers should have more rights as tenure holders.

Other statements were also made.

- A few non-ranching respondents stated that bidding would ensure that a fair price is paid for range. The ranching community was definitely opposed to bidding for setting grazing fees and determining control of specific areas of range. The ranchers stated that bidding could lead to instability, reduced long-term planning, and less competence in the management of the range tenure.
- The non-ranching industry respondents did not oppose an increase in the grazing fees. Many say that grazing fees are so low that the government is subsidizing the

ranching industry to the detriment of range resources and other range users. Two guide/outfitters agreed that a moderate increase in grazing fees is justified. Wildlife interests generally felt that ranchers should pay much higher fees.

- The timber industry believes that grazing fees should result in a fair return to the Province, but they did not state that fees should increase. The timber industry also recognized that if ranchers were given more responsibility for management, the cost should be reflected in the rancher fees. Several respondents suggested that the current annual return of $0.16 per hectare to the Province from grazing was ridiculously low, and did not even begin to recover the cost of administering the Range Program.
- Several respondents stated that it makes little sense to increase grazing fees until the Review is complete and a long term strategy for the Range Program has been adopted.

Continued Public Administration of Range

Most respondents stated that stewardship of complex range resources for the benefit of all users should remain a Crown mandate.

Many respondents addressed the issue of the Crown turning over more responsibility for planning and management to tenure holders. The responses indicated two different levels of planning. Ranchers were primarily thinking about the day-to-day operation of their business within the framework of an established high-level plan in which domestic livestock production has been integrated with other uses of the range resources. Non-ranchers thought of broader planning and doubted that a rancher could adequately take on responsibility for integrated management when the primary objective of ranching is to maximize profit from domestic livestock production.

The cattle industry depends on access to Crown rangelands.

Most respondents from the cattle industry suggest that they have the ability and self-interest to do the planning and management for their own operations. But they recognize that some ranchers do not have these capabilities, and will continue to need the assistance of the Forest Service range agrologist.

Larger organizations such as forest companies can afford to hire specialized skills for certain technical tasks. Some respondents noted that ranchers cannot do this and that the Forest Service should continue to provide this service.

Responsibility for Range Improvements

While most respondents accepted the idea that range improvements are desirable, a few considered fences and other features to be an impediment to access and use of the range resources. An improvement for one user may not be an improvement for another.

Representatives of the cattle industry expressed the following views:

- Ranchers should not have to pay for capital costs of range improvements that are beneficial to other users of the range resources.
- If grazing fees are raised, the fees should be invested in range improvements and maintenance that benefit the domestic livestock industry.
- Ranchers should not be responsible for cost and maintenance of range improvements that become necessary as a result of the activities of other range users. Example: fences to replace natural barriers that are lost through logging.
- Ranchers should control government funds which are intended to provide range improvements for the cattle industry. It was noted that the rancher knows what mix of improvements would be most beneficial to the ranch.
- Regional Districts should establish a range improvement fund from fees paid by developers of subdivisions.

A few respondents noted that range improvements are also needed for wildlife and other users. Improvements should be designed with benefits and minimal costs, such as diminished aesthetics, for all users. Examples of fences restricting access were given.

The timber industry said that the terms of grazing tenures should clearly state the responsibilities of the Crown, cattle industry and forest companies for construction of range improvements. Terms of the tenures should conform to an integrated management plan such as the CRMP (Co-ordinated Resource Management Plan). Because timber harvesting is a long-term rotational crop, the ranching industry should not expect the boundaries and the fences in forested rangelands to be permanent.

Some concern was expressed that private graziers and landowners were treated unfairly in relation to tenure holders. For example, landowners object to being fully responsible for fences separating their cattle from those grazing adjacent tenures.

Responsibility for fencing around subdivisions was also questioned: graziers should not have to deal directly with developers when they threaten the use of established tenures.

Stronger Co-ordinated Resource Management Planning (CRMP)

Many respondents view the CRMP (Co-ordinated Resource Management Plan) as the chief tool by which the Forest Service can exercise its moral responsibility of stewardship and its mandate to manage all Crown vegetation including timber, forage, and habitat resources for the benefit of all users. Given this role, they felt that the Forest Service should not act as an advocate for any one user group.

Respondents from ranching, wildlife, recreation, and timber stressed the need to encourage, develop, implement, and improve the concept of CRMP. This was considered the most effective tool in achieving integrated resource planning and in resolving resource conflicts.

- CRMPs are considered essential in improving communication among diverse users of Crown resources at the most basic level.
- All respondents stated that the Forest Service must accept responsibility for ensuring that CRMPs are effectively used to give ranching, wildlife, and recreational interests significant and fair input into the use of Crown lands.
- Non-timber sectors emphasized that the CRMP process must ensure that timber interests recognize the existence and value of other resources within the forested Crown lands.
- Regional Districts noted that CRMP should consider local zoning and park planning and conform to requirements of the *Agricultural Land Commission Act*.

A few respondents considered increased range inventories and monitoring to be essential in successful implementation of a CRMP. The view was expressed that these activities should be conducted by the Forest Service because a user of a single resource would otherwise be susceptible to a conflict of interest. There was one suggestion that a CRMP could be improved by having common boundaries for range, wildlife, and timber management units.

Weed Containment and Control

Many respondents emphasized the serious threat that weeds pose in British Columbia. The problem is not restricted to lands administered by the Forest Service. Respondents were concerned about weeds on private land, leases, and rights-of-way for hydro, road and rail.

Most respondents want the Forest Service to take the lead in co-ordinating an enhanced weed containment and control program. There were different opinions on the cause of and solution to the weed problem. Some wildlife interests blamed ranchers for overgrazing and causing weeds to get out of hand while others simply recognized it as a problem affecting both wildlife and livestock ranges. Some respondents called for a massive chemical spray program while others were worried about the environmental impact of the chemicals. Evidently public fears about the danger of chemical herbicides must be considered.

A broad basis of support exists for the Forest Service to co-ordinate the Provincial noxious weed program. Some consider enforcement of the *Weed Act* to be essential, and that a provincial program to control weeds is also essential on all provincial, municipal, federal, and private lands.

Access to Crown Lands and Liability to Tenure Holders

Access to Crown lands and the associated liabilities for damages and lost benefits are of concern.

Recreational and wildlife interests believe they have a prior right of access and that any cattle operation is an impediment to use of public land. They consider the rancher responsible for any loss in value of the resource and the opportunity to use it. They want their right of access safeguarded in tenure documents and the CRMP process.

Conversely, ranchers are concerned about their inability to control public access on their tenures. They feel that it is unfair that they must absorb the costs of damage caused by intruders. Damages include broken fences, open gates, and compacted vegetation from motor vehicles.

A number of respondents felt that off-road and all-terrain vehicles should be barred from Crown lands because of their negative impact on the environment and on range improvements.

Structural range improvements increase carrying capacity of rangelands for livestock.

Tenure Administration

A number of respondents raised some specific concerns about tenures and the conditions under which they are granted.

- The concept of an animal unit must be better defined. The present system may discourage ranchers from keeping yearling cattle. It does not reflect variation in breeds and metabolic status of domestic livestock and wildlife.
- Ranchers state that more flexible grazing plans are needed in fluctuating economic and weather conditions.
- The timber and cattle industries favour a shift to longer tenures. Their respondents state that this would encourage better long-term planning and greater willingness to invest in range improvements. Some ranchers suggest that ten-year tenures be renewed every fifth year to give greater planning security. However, one Regional District was concerned that long tenures would interfere with park planning. And one wildlife group states that the maximum tenure should be ten years.
- The timber industry wants tenure documents to include mandatory participation in the PreHarvest Silviculture Prescription (PHSP) process and to specify rancher accountability for damage due to negligence or poor practice.
- Many ranchers requested increased security through increased tenure length, greater control of the land base, and protection from damage caused by other users of the range resources.
- Most ranchers are not in favour of multiple grazing tenures because they feel that the quality of management will be lowered.
- Two small ranchers described their frustrations in obtaining hay-cutting and grazing tenures. They emphasized their need for a small piece of the resource base, feeling that bureaucratic processes favoured larger operations and were not sensitive to the values they held.
- Respondents with varied resource interests expect the Forest Service to enforce the terms of grazing tenures with respect to period of authorized grazing, numbers of AUMs (animal unit months), and liability for damages.

The impact of livestock grazing on forest regeneration is of concern in some areas and requires careful integrated planning.

Research

Suggested research topics include:

- Identification of shade tolerant grasses that will do well in west coast rain forests.
- Long-term effects of logging on wildlife species and ecology in north-eastern British Columbia.
- The impact of grazing animals on forest regeneration in clearcuts.
- The role of forest succession in reducing the carrying capacity of rangelands for wildlife and domestic livestock, and methods to deal with the problem.
- Economic analysis of the benefits received by various range users from range resources and the performance of the Range Program in increasing those benefits.
- Development of grazing systems that will increase carrying capacity for cattle while enhancing wetlands and upland cover for game birds.

Livestock/Wildlife Interactions

Conflicting views characterized the many statements on competition of wildlife and domestic livestock for the same range resources. This issue generated the most emotional responses. In general, wildlife interests (especially hunters' organizations) were opposed to the presence of too many cattle, and the ranching industry states that the Ministry of Environment has been negligent in refusing to control the numbers of wildlife (especially elk and wolves).

- The ranching industry states that losses of forage and damage to investments are being caused by wildlife. They say that this is unfair.
- One group considers that feral horses should be left free as a wildlife species to use Crown range without being harassed by Forest Service staff.
- Wildlife interests consider that the Forest Service has been negligent in not exercising its mandate to manage vegetation for the benefit of non-timber users (especially wildlife). They also state that resource degradation has resulted directly from cattle ranching. Many do not believe the Ministry is sincere in its stated objective of ensuring integrated management.
- Several hunters' organizations want domestic livestock excluded from mid to high elevation ranges. They are concerned that the Forest Service does not enforce grazing regulations, allowing domestic livestock to remain on Crown lands for extended periods so that overgrazing occurs.
- The Ministry of Environment believes that the Forest Service does not have qualified staff to address issues related to wildlife habitat.

- There is considerable confusion in the public and amongst government staff regarding the actual and ideal roles of Integrated Resources Branch and the Range Program in managing range resources outside of traditional "cattle country".
- A few respondents want the Ministry of Environment to control unlicensed packers. The unlicensed packers take their horses and clients into the tenures of legally authorized guides and outfitters where they compete for the same forage and game animals.

There are also several areas of agreement among the livestock and wildlife interests.

- The Co-ordinated Resource Management Planning process is needed to resolve livestock/wildlife conflicts.
- A range-habitat inventory system is needed to provide essential information for conflict resolution.
- Forest ingrowth is a major factor contributing to the loss of the carrying capacity of rangelands.
- The timber industry dominates the Forest Service so that other users of Crown lands are largely ignored.
- The Ministry of Environment suggested a Senior Advisory Committee reporting to the Assistant Chief Forester and composed of experts from range, wildlife, water and agriculture programs, and knowledgeble academics if required, that would establish a framework for the development of forage allocation and inventory guidelines.
- It was further suggested that rangeland and forage be allocated by the Regional or District Manager, through consultation with the regional agencies responsible for range management. Conflict should be address first at the Regional Director/Manager level and then at the ADM level in Victoria.

The view was also expressed that forage allocation guidelines should be drafted by a joint committee composed of technical staff from each agency at a Timber Supply Area (TSA) level, with Coordinated Resource Management Planning the process of choice for allocating forage on a per range unit basis.

Mission, Strategic Goals, and Advocacy

Many respondents pointed out that there is no clear statement of either the mission or the strategic goals of the Range Program. This results in the apparent lack of consistency in policies and procedures used by range agrologists. The respondents want this remedied.

Tied to mission is the concept of advocacy. Ranchers clearly want the program to serve as their advocate for promoting the cattle industry within the Forest Service. Some suggested that the Ministry of Agriculture and Fisheries should serve as advocate much as the Ministry of Environment acts as the advocate for wildlife. Many respondents want the Range Program to be the steward of the range (vegetation) resources on Crown lands.

Rangelands provide forage and habitat for a variety of wildlife species.

They state that the role is to ensure sustainable development and optimal benefits for all resource users.

Some essential steps in formulation of the mission and the strategic goals were suggested.

- Decide who will be served by the program.
- Choose advocacy or stewardship. Note that playing both roles is a conflict of interest.
- Decide the range resources to be managed. Water, game and non-game wildlife, natural flora, and species diversity were important.
- Decide priorities for benefits such as food production, hunting, timber, aesthetics, etc.
- Allow for the establishment of regional goals.
- Ensure that the Range Program is consistent with other land-use plans in British Columbia.
- Develop and implement stronger legislation to ensure that integrated resource management takes place.
- Compel all resource users to comply with the legislation by effective enforcement.
- Develop long-term goals for wildlife and domestic livestock populations. Decide the seeding and range improvement needed to achieve these targets.
- Decide how much private investment in Crown range is desired and how to achieve it.
- Identify and implement appropriate methods to shift responsibility for planning and management to tenure holders.

Role and Qualifications of Range Agrologists

The administrative costs per AUM varies by a factor of four between Regions. Allocation of Range staff was questioned.

Concern was expressed that the duties and reporting relationships of the range agrologists are confused, and that some agrologists are not adequately experienced to carry out their responsibilities. Some respondents, including the B.C. Cattlemen's Association, felt that the district range agrologist should report to the regional range officer rather than to a District Manager.

Reducing costs was also suggested.

Communication

Respondents from diverse backgrounds suggested steps to establish better communications among all users and managers of range.

- Provide a clear statement of Government goals for the livestock industry and range resource.
- Provide a clear statement of the mandates of various government agencies to achieve these goals.
- Make CRMPs the focal point for discussion among competing users.
- Provide demonstration projects of integrated waterfowl/livestock systems for reference.
- Train Range staff in all aspects of the Range Program.

Appendices

Appendix 1. Terms of Reference for the Range Program Review

Appendix 2. Range Program Activities and Subactivities

Appendix 3. Selected summary of the B.C. Beef Industry Study: A Statistical Profile

Appendix 1

Terms of Reference

Final Version
December 1, 1988

1.0 Introduction

Through the management and stewardship of forested and non-forested Crown rangelands, the Forest Service's Range Program goals are to contribute to the socio-economic benefit which British Columbians derive from rangelands and to manage the rangelands for use by livestock and wildlife.

Range Program activities significantly contributing to this effort include: policy development; range unit planning; forage enhancement through the containment and biocontrol of rangeland weeds, grass seeding, prescribed burning and the construction of structural range improvements; allocation of range resources to livestock and wildlife; and liaison with other public and private resource agencies and user groups.

Some program goals serving the livestock industry are realized through administration of 2254 grazing and hay cutting tenures covering 932,000 Animal Unit Months (AUMs) of forage use, generating revenues of $1,331,860 in 1986/87.

Since 1980, the Range Program has been included in two descriptive reviews: the Forest and Range Resource Analysis, 1984 and the Forest Management Policy Review, 1986. The Resource Analysis was designed to review each of the Ministry's programs in a moderate degree of detail while the Forest Management Policy Review in 1986 focused on fewer topics in greater detail. Hence, due to the nature and focus of these previous reviews, the Range Program has yet to be comprehensively analyzed in its entirety.

In light of government's commitment to enhance program efficiency and cost effectiveness, it is necessary to critically assess the structure and function of the Range Program. This review will ensure that the content and delivery of the program is consistent with government's fiscal and management objectives in the context of the long term needs of British Columbia's industries and public interests which are directly and indirectly affected by Crown range management.

2.0 Focus of the Range Program Review

Although the Range Program Review will provide a broad assessment of all aspects of the program, there are some specific priorities that must be addressed in the final report:

a) Strategic Plan for Range Management

The ultimate goal of the Range Program Review is to provide a strategic plan to guide range management priorities in the future. This plan must be coordinated with the Province's goals for growth of the livestock industry, its programs of land alienation for agricultural development and other uses, demands for wildlife habitat, interactions with other users of the forest and range landbase, and environmentally based activities such as fisheries, water resources and air quality. The plan will provide recommendations with respect to alternative management strategies to improve the Range Program.

b) Program Goals and Priorities

Program goals and priorities will flow from the Strategic Plan. Currently, implementation of the range program varies widely from District to District and, to a lesser extent, from Region to Region. Some of this variation is in response to different local situations but much is expected to result from individual District interpretations of program goals. The Review will provide greater efficiency in program delivery through a sharper focus of goals, while identifying needs for flexibility in response to local demands and priorities.

c) Tenure System

Grazing tenures under the *Range Act* comprise Grazing Licences, which have a ten year term, and Grazing Permits of various terms from one to five years. Haycutting tenures also include Licences and Permits with the same terms as grazing tenures. The majority are one year permits which carry a high administrative workload and convey minimal responsibility to the holder. There may be an opportunity to convey more Crown range management responsibility under licences. Also, the size distributions of permits and licences should be examined in relation to industry development goals. The desirability of multiple vs individual livestock grazers on specific land areas should be reviewed. The question of forage allocation for wildlife and the responsibilities of wildlife managers must be addressed.

d) Planning

Use of Crown range by livestock and wildlife should be based on management plans developed for Timber Supply Areas and on other forms of plans within the Forest Service planning system. At present, range planning has not been developed to the same extent as timber planning for these management units. Where plans are required under tenure agreements, it is often the Forest Service Range Agrologists who prepare the plans, rather than the tenure holder. This situation requires review in relation to responsibilities under the different form of tenure. There is a need to clarify the role of the Range Agrologist in providing advice and service in plan preparation as well as approving and monitoring the plans. There is also a need to determine how the interests of livestock owners, wildlife managers and forest companies can be integrated effectively.

e) Budget

Costs associated with delivering the management alternatives in the strategic plan will provide a basis for firm budget estimates that can be related directly to deliverable goals. The completion schedule indicates that this information will be available for the 1990/91 budget estimates process.

f) Grazing Fees

A proposed increase in grazing fees for 1988/89 was postponed for one year. The Minister directed that during that interval, there should be a complete assessment of the grazing fee structure leading to a set of proposals for implementation in 1989/90. Emphasis will be on setting fees that represent a fair return to the province in relation to the value of forage provided to the ranching industry. A question to be addressed is whether or not the fees now cover those costs under the Range Program attributable to management and administration of forage for the livestock industry. To do this will require partitioning the benefits of the program to various user groups: livestock industry; wildlife; recreation; forestry; general public (resource stewardship). Priority will be placed on the analysis of grazing fees because of a government deadline to have a new fee structure in place for the 1989/90 fiscal year, prior to completion of the Range Program Review.

g) Revised Legislation

Based on sections 'a' through 'f', above, appropriate legislation can be draughted. Currently over 50 amendments have been proposed for the *Range Act* and more may be required if the Review precipitates new management directions. The Range Program Review will set the context in which the Legislature can take a holistic view of the amendments.

h) Revised Policies

Range policy has resided in the Grazing Manual, supplemented by knowledge of experienced staff. The Manual is now out of date and verbal communication of unwritten policies has been hindered by organizational decentralization. In response to these deficiencies, work has commenced on 15 policies but only 3 have reached the approval stage. The Range Program Review will create a management strategy in which all existing or proposed policies can be evaluated, policy initiatives established and priorities set for policy revision and development.

i) Communication of Range Management Concepts

Range management is less familiar to many Forest Service staff than are programs of other agencies, yet effective range program delivery requires a broad awareness at all levels of the organization. The Range Program Review will strive to provide this internal audience with a clear, concise description of the programs purpose, philosophies and goals.

j) Organization

Concerns have been expressed that decentralization of the Range Program has affected its identity and cohesiveness leading to diminished service to client groups and reduced emphasis on program goals. The Range Program Review will evaluate the roles and responsibilities of District, Region and Branch staff including an assessment of workload. Recommendations will be made on how to improve the program's effectiveness within the Ministry's operating environment.

3.0 Program Review Organization

The organization of the program review will be comprised of three tiers: a Steering Committee, a Review Task Force and several technical work groups (See Table 1).

The Steering Committee, chaired by the Chief Forester, will include senior representatives from ministries whose mandates are directly affected by the management of the Crown range resource, as well as representatives from ranching, forestry, recreation and wildlife interest groups.

The Steering Committee will function to:

(1) ratify a terms of reference for the program review,
(2) determine the overall direction and content of the review,
(3) ensure that this direction is followed, and
(4) evaluate and approve the findings and recommendations of the program review.[1]

The Review Task Force, chaired by the Manager, Range Section, will consist of Regional Range Officers, two senior staff members of the Range Section, Integrated Resources Branch and other Forest Service staff members as assigned by the Chief Forester. The primary responsibilities of the Task Force will be to carry out the Range Program Review in accordance with the approved direction and terms of reference provided by the Steering Committee. The chairman of the Task Force will meet periodically with members of the Steering Committee to inform them of progress.

The Task Force shall submit a written report of its findings and recommendations to the Chairman of the Steering Committee.

Technical work groups will be formed from members of the Review Task Force, other government staff and selected specialists from outside of government. The primary function of these technical work groups will be to conduct indepth analysis of technical and professional issues related to the review. Work groups will be chaired by a member of the Review Task Force and will report periodically to the Task Force through their chairmen.

Proposed topics to be covered under the review are outlined in Section 5.0.

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[1] *Subsequent to approval of the Terms of Reference, the role of the Steering Committee was clarified relative to review of the final report. The Steering Committee serves as advisor to the Chairman of the Range Program Review and is not intended to have an approval function.*

Table 1: Range Program Review Organizational Structure

Steering Committee

Chief Forester, Chairman

Agriculture and Fisheries - Environment
Forests - Lands - B.C. Cattlemen's Association
B.C. Wildlife Federation - Interior Forest Industry

Review Task Force

Manager, Range Section, Chairman
(also member of Steering Committee)
Senior Staff, Integrated Resources Branch; Regional Range Officers;
other ministry staff as appointed by the Chief Forester.

Technical Work Groups

Review Task Force Member, Chairperson
(staff and other participants as designated)

4.0 Time Schedule of Program Review

A time schedule for the Range Program Review is as follows:

1. Circulate Draft Terms of Reference	88/07/31
2. Steering Committee Meets to Commence Range Program Review	88/08/16
3. Task Force begins review	88/09/01
4. Terms of Reference Distributed As Discussion Paper to Solicit Interest Group and Public Input to Review	88/12/15
5. Progress Report and Draft of Range Program Review Document Completed	89/03/01
6. Steering Committee Meets to review draft report and make final recommendations for change	89/03/17
7. Report submitted to Chief Forester	89/03/31[2]

[2] *Deadline extended to 89/04/30 upon request of the Steering Committee.*

5.0 Topics for Review

A. Overview of Current Range Management Strategy

The overview will provide a description of current goals and objectives of the Range Program relative to the needs of all users of Crown range including statements of goals of government agencies and users of Crown range. Emphasis will be placed on *status quo* funding and staffing levels and will provide the basis for comparison of new management initiatives. The Task Force will complete a draft of this topic to enable more detailed analysis in the following sections.

Specific considerations under this topic are to:

- evaluate the current strategy of the Range Program: is there a strategic goal?; is it appropriate or adequate?; is it consistent with government and ministry policy direction?; does it adequately address the specific needs of the various users of the range resource?
- provide goals of government agencies, private sector interest groups and the livestock industry regarding range management in B.C.
- define what the range program does.
- present resource users' views of the current range management program.
- describe the mandates and goals of other government agencies and determine how they influence and are influenced by the Forest Service's Range Program.
- assess the roles of government and the private sector in promoting a strong, economically sound provincial livestock industry.

Project Coordinator: Ray Addison

B. Range Administration

This topic will examine the mandates of the Forest Service and other government agencies relative to the range resource. It will assess the legislative, organizational and administrative frameworks in which the Range Program operates. Tenure administration is not included under this topic but is addressed in a policy context under topic "C".

Specific considerations under this topic are to:

- examine Range Program's organization, structure and function relative to government and industry needs.
- examine roles, responsibilities and workloads of branch, regional and district staff relative to program goals.

Project Coordinator: Lyle Resh

C. Range Management Policies

This topic includes a comprehensive review of all existing and proposed policies and procedures. Particular attention will be focussed on the intent of the policies, both individually and collectively.

Specific considerations under this topic are to:

- describe the general philosophy, written or unwritten, underlying implementation of each section of the *Range Act*.
- review all approved and draft policies in relation to the above.
- include an assessment of the policy framework from the perspective of all resource users, including areas where policy is deficient or lacking.
- evaluate the process by which policies are developed and approved.
- assess the grazing tenure system with a view to streamline its administration and allow for additional delegation of responsibility to the tenure holders. Include a review of the Forest Service's role in the administration and management of grazing leases.

Project Coordinator: Dwaine Brooke

D. Economic Perspectives on Range Management

This topic comprises a variety of related matters pertaining to the economics of the ranching industry, government revenues, administrative costs and benefits to all users from the Range Program.

Specific consideration under the components of this topic are to:

D1. Livestock Industry

a. Range Revenues

- evaluate the management costs of administering Crown forage for the livestock industry in relation to revenues generated.
- review grazing fees and ground rental charges in other jurisdictions with an emphasis on determining a fair and equitable rate structure for the use of Crown forage.
- assess possibility of fees for administrative processes such as transfers, authorizations, etc.
- develop alternatives for new fee schedules.

b. Economics of the Ranching Industry

- determine market and non-market benefits of the provincial livestock industry and it's contribution to B.C.'s economy as well as it's importance in social aspects of life in B.C.
- examine the roles and responsibilities of government and user groups in planning and financing the construction and maintenance of range improvements.
- establish an appropriate level of monitoring to ensure cost-effectiveness of range treatments.

c. Value of Crown Forage

- determine the value of Crown forage to the ranching industry in the context of selected ranching operations.
- select examples according to size and other representative characteristics.

D2. Integrated Use of Range Resources

a. Program Benefits

- economic benefits resulting from the program to livestock, guide/outfitters, wildlife, recreation, silviculture and other beneficiaries.

b. Program Costs

- statement of government and ministry policy with respect to recovery of program costs.
- identification of direct program costs in administration, range improvements, and other activities.
- other sources of funds, including private sector.

c. Evaluation of Program Impact

- what is the impact of the program on the provincial economy in both economic and social terms?
- what are the specific strengths of the program?
- what are its weaknesses?
- determine the cost-effectiveness of Range Program activities.
- assess the overall efficiency and effectiveness of program delivery from the perspective of all range uses.
- include recommendations for increasing program efficiency.

Project Coordinator: Earl Jenson

E. Analysis of Range Management Functions

This topic includes a comprehensive review of the major management functions carried out under the Range Program. Each of these topics will include an assessment of how they contribute to achieving ministry or program goals and to accomplishing policy directives.

a. Weed Containment and Control

Include:

- scope, nature and impact of rangeland weed problems.
- relative cost-effectiveness of Range Program weed containment and biocontrol activities.

- interagency responsibilities.
- species priorities, methods of control and funding sources.
- Region/District responsibilities - effects on program delivery.
- options to improve weed management activities.

Project Coordinator: Jack King

b. Inventory, Monitoring and Research

Include:

- current status of each activity.
- costs and benefits of inventory and monitoring functions in management of Crown rangeland resources - include assessment of appropriate levels of monitoring.
- mapping requirements and suitability of mapping activities to supply field staff with required map information.
- survey of District needs for these activities.
- range research projects, costs and priorities.
- evaluation of current stocking levels relative to forage productivity on Crown rangelands (recognized to be difficult to measure - provide survey of field staff opinions)

Project Coordinator: Ken Long

c. Range Improvements

Include:

- benefits and costs of structural and nonstructural range improvements constructed using government funds.
- roles and responsibilities of government and user groups in planning and funding range improvements.
- assess need to license range improvement water developments.
- determine the appropriate level of monitoring required to assess the impact of range improvement investments.

Project Coordinator: Don Russell

d. Livestock/Wildlife Interactions

Include:

- allocation of the Crown forage resource between livestock and wildlife with emphasis on the identification of strategies for resolution of local forage allocation conflicts (include use of zonation in plans).
- suitability of different rangelands for different classes of livestock and wild ungulates.
- impact which weeds, predators, land alienation, logging, forest succession and wildlife forage demands have on the management of Crown forage for the livestock industry.
- respective roles of government and private sector in managing the forage resource.

Project Coordinator: Tom Lester

e. Range Planning

Include:

- evaluation of potential development of a standardized Range User Management Plan for Grazing Licences, Grazing Permits and Grazing Leases.
- need for and status of range resource management plans which provide a basis for input to CRMPs, other local management plans, TSA/TFL plans, etc.
- develop a framework for strategic rangeland management plans which would provide a 20 year framework for integrating grass seeding, range burning and other treatments (structural and non-structural range improvements) to project an optimum 20 year sustained range resource strategy.
- evaluate operational procedures for estimating total Crown range requirements (demand) for livestock and wildlife.

Project Coordinator: Rob Gordon

Appendix 2

Range Program Activities and Subactivities

Program Management Activity

Maintains organizational structure and administers government policies and goals within the Range Program.

Program Administration

Includes basic administrative functions, preparation of budgets and other required program documentation.

Training & Conferences

Includes professional and work-related training, educational meetings and conferences, seminars, workshops, field trips, directed studies and university courses. Does not include project-related meetings for specific subactivities.

Program Audit

Assesses program delivery relative to goals and includes submissions to the Ministry of Forests Annual Report, Range Program Annual Report and technical audits.

Policy Development

Includes preparation and amendment of statutes and regulations, interagency protocol agreements, ministry policies, standard operating procedures and manuals and technical publications.

Resource Management Activity

Protects and conserves the range resource. Provides technical support for range management.

Weed Containment & Control

Includes use of biological control agents and herbicides, monitoring weed infestations, evaluation of herbicides and biological control agents. Related research is included under the Range Research Subactivity.

Range Monitoring

Includes assessment of range condition and utilization of plant communities not covered in other Subactivities such as Weed Containment or User Management Plans.

Range Planning (Integrated Resource Management)

Includes design, development and implementation of planning processes, preparation of or contributions to plans for Timber Supply Areas, Tree Farm Licences, Range Units, Coordinated Resource Management Plans, PreHarvest Silviculture Prescriptions, etc. Also includes Livestock/Wildlife Interactions. Grazing System Plans are under the User Management Plans Subactivity.

Range Inventory

Includes mapping range unit boundaries and structural improvements, interpretation of range productivity from forest cover and biophysical data, and vegetative surveys in accordance with procedures described in the Range Inventory Manual.

Resource Enhancements

Includes prescribed burning, other silvicultural treatments for forage enhancement, grass seeding of roads, landings and clearcuts, and other non-structural improvements. See the Tenure Improvements Subactivity for structural improvements and intensive forage management.

Range Research

Includes only projects that meet scientific design standards. These projects are normally reviewed and approved by the Regional Research Advisory Committee and supervized by a staff or contracted research scientist.

Operational Trials

Includes demonstration sites and other tests of range management treatments where prescriptions are applied on an experimental or trial basis.

Range Use Management Activity

Facilitates use of range resources and enforces compliance with tenure and plan provisions.

Tenure Administration

Includes all aspects of range tenure administration such as issuance, amendment, transfer, billing, performance audits and policy administration.

User Management Plans

Includes approval and monitoring of Grazing System Plans which are prepared and approved for grazing licences and leases plus operating conditions which are part of grazing permits. Advice provided to ranchers and other resource users is included under the Extension Subactivity.

Tenure Improvements

Includes construction and maintenance of structural improvements such as water developments, stock trails, boundary fences, stock control fences, as well as non-structural improvements of direct and immediate benefit to specific tenure holders. Examples are community pasture development and maintenance, intensive forage management.

Extension

Includes all information and advice provided by Ministry staff to individual ranchers and associations, other user groups and the general public.

Enforcement

Includes trespass action, horse control, suspension or cancellation of range rights, seizure of livestock, and other related matters.

Appendix 3

Selected Summary of British Columbia Beef Industry Study

The purposes of this study were to provide an industry synopsis, a profile of producers, an estimate of the value of Crown range to British Columbia producers, an industry outlook and a perspective on the demand for Crown range.

A.O Industry Synopsis

A.1 Cow-Calf Production

B.C.'s traditional role in the Western Canadian cattle industry has been as a producer of feeder cattle, mostly calves, many of which leave the province to be finished elsewhere, principally in Alberta, but also in Ontario and the United States. Within B.C., cow-calf production is centered in the Cariboo and the Southern Interior where two-thirds of the B.C. beef cow herd is located. This area produces about 60% of the total B.C. production of calves. Remaining calf production occurs in the North Central and Peace regions and in the South Coast area. In the South Coast area, most calf production is generated from the dairy herd.

A.2 Backgrounding and Finishing

The B.C. slaughter is comprised almost entirely of animals produced in B.C. and is characterized by a high proportion of animals culled from the B.C. dairy industry.
Considerable efforts have been made in recent years to increase the amount of cattle finished in B.C. and to increase the weights of feeder cattle sold to buyers from outside B.C.

B.C. imports most of the beef that is actually consumed in the province. Provincial slaughter provides only about one third of estimated consumption requirements. Most of the remaining beef and veal consumed in B.C. enters the province from Alberta. Much smaller amounts are imported from the U.S. and off-shore sources. If reported shipments of live animals are taken into consideration, B.C. beef and veal production amounts to approximately half of estimated provincial consumption.

A.3 Slaughter and Packing Industry

Sixty different meat packing and processing concerns are listed in the 1987 British Columbia Manufacturer's Directory. The bulk of these are small meat packers serving local or regional markets or are small firms producing specialty meat products for a wider but limited (low volume) market. Most of the industrial activity occurring in this sector of the meat industry is generated by the 16 largest firms.

The actual inspected slaughter in 1986 averaged just over 5,000 units per week, although peak monthly slaughter reached close to 30,000 units in June, or the equivalent of a weekly slaughter of 6,900 units. This latter figure compares favorably with a BCMAF estimation of industry capacity. In 1987, B.C. slaughter figures were considerably lower than 1986, averaging just over 4,000 units per week, or less than 60% of capacity. A unit is defined as a mature beef animal, or four calves, hogs or lambs.

One major slaughter plant is already under construction and a proposal for another major kill and ship facility is currently under consideration in Alberta. These facilities could potentially have a major impact on the slaughter industry in Western North America.

Even if only one plant is built, the B.C. slaughter industry will face heightened competition, in the short run, not only for animals currently being sourced from Alberta, but also for B.C. origin animals presently being slaughtered in B.C. In addition, B.C. feedlot operators will face increased competition from Alberta feedlots for B.C. feeder cattle as Alberta

B.C. Cow and Calf Populations

Reported at June 3, 1986
(number of head)

	Beef Cows	Dairy Cows	Total Cows	Total Calves
Cariboo & South Interior	142,590	11,099	153,689	132,489
North Central & Peace	58,589	4,616	63,205	53,931
South Coast	13,491	59,290	72,781	40,362
Total B.C.	214,670	75,005	289,675	226,782

operators attempt to supply the increased Alberta slaughter capacity. In the longer run, it is likely that capacity will be rationalized as more inefficient plants are closed. This could include some portion of existing B.C. capacity.

A.4 Economic Contribution of the B.C. Beef Industry

Three levels of economic activity are normally defined in socio-economic analysis. Direct activity is that associated with the particular program, project, or sector itself (for example, the B.C. beef industry). Indirect activity refers to income and employment generated as a result of input purchases made by the direct activity (for example, purchases by beef producers of fertilizer, fuel, machinery repairs, etc.).

Induced activity involves the additional employment and income that then arises from the consumption spending and re-spending of those directly and indirectly employed by program, project, or sector (for example, the consumption purchases of producers and suppliers and the subsequent re-spending of this income).

In summary, for 1985 and 1988, the following amounts of economic activity are estimated to have been generated by the B.C. primary beef production sector:

Income is defined as the value-added component of gross sales, that is, the return to land, labour and capital after all other purchased input factors have been paid. Employment includes all jobs stemming from the creation of income.

In addition to these contributions stemming from the activity of B.C. beef producers, additional economic contributions are made by the slaughter and processing industry. Based on 1985 financial data, the total value-added income produced by 43 reporting meat and meat products (excluding poultry) establishments in B.C. was about $114 million, and induced income is estimated at an additional $14 million. The total impact of the industry in 1985 is estimated at $190 million, however, not all of this income is related to the B.C. beef industry, since the slaughter industry also processes cattle sourced outside B.C., hogs, as well as beef animals derived from the dairy herd. It is not possible to separate out the portion of this income that is related to B.C. beef producers. In addition, the estimate of indirect income produced by the slaughter industry overlaps to some extent with the above estimates of producer-generated income, since a portion of the cost of sales of the slaughter industry constitutes the sales revenue of B.C. beef producers.

In 1985, the B.C. slaughter industry reported employing 1,871 persons working a total of 1,879 person years. Indirect employment, mostly in agriculture and including B.C. beef producers, is estimated to be in the order of 1,600 person-years. Total employment generated in 1985 is estimated at 3,841 person-years.

B.0 Detailed Producer Profile

B.1 The Census of Agriculture contains no information on Crown range use by Census respondents and, therefore, no analysis is possible within regions comparing beef producers who use Crown range and those who do not. It is possible to draw a few tentative conclusions about the impact of Crown range use by comparing differences in regional use with regional differences in beef production functions, as evidenced by Census data.

- While exceptions can be noted, these data give some credence to the notion that Crown range use provides some measure of cost or competitive advantage to

Income Generated by B.C. Beef Producers

	1985	1988	
Direct (producer) income	36	81	$ million
Indirect (supplier) income	28	29	
Induced (re-spending) income	15	19	
Total Income	79	129	$ million

Employment Generated by B.C. Beef Producers

	1985	1988	
Direct employment	2,207	2,207	person years
Indirect employment	451	418	
Induced employment	395	443	
Total employment	3,054	3,067	person years

regional producers that have access to it compared to producers in other regions that have no or lesser amounts of Crown range.

- Small producers (less than $12,000 in annual farm sales), on average, do not appear to be of an economic scale to produce any value-added to the B.C. economy, even during periods of favourable market conditions. This suggests that, where such producers are using Crown range, no net benefit may be arising from their use of Crown range and leads to the following recommendation:

Given the Ministry's legislative mandate to assist in the optimization of output from the lands within its jurisdiction, this finding should be contemplated further. The Range Management Program should consider auctioning new range opportunities that become available through the range expansion program contemplated by this study. This would ensure that these grazing resources would flow to the most efficient producers, without causing the same degree of disruption that is feared if a more general auction system was adopted. Such a proposal would also provide useful information on the value of Crown ranges which could then be considered when setting future grazing fees on other lands. If even this proposal is judged unacceptable and administratively set fees are continued, then consideration should be given to setting eligibility criteria that favour efficient producers.

B.2 For decades the lack of data on rangeland use in B.C. both for Crown and private ranges, has hampered the development of sound agricultural planning and policy development respecting rangeland use. The difficulties that this current study had in assembling suitable data has reinforced how little is known about the province's rangelands. More data are needed and not all data collection need involve costly programs. Because this report deals only with the beef industry's use of Crown range, the data collection recommendations that follow deal specifically with data needed to better define the beef industry's requirements for Crown range and the impact of Crown range on B.C. beef production. The following three data collection procedures are recommended:

- The MOF should follow-up on a previous request to Statistics Canada to include a grazing section in the Census of Agriculture. The Ministry should design a questionnaire component dealing with Crown and private rangeland use and should petition Statistics Canada to include the component in future Censuses, starting with the 1991 Census. The component should identify respondent use of Crown range, Crown Community Pasture, as well as private range/pasture. Stocking levels in AUMs. by season (spring, summer, fall, winter) and by range characteristic(s) (Community Pasture, other Crown range, improved private pasture, unimproved private pasture) should be collected. Some thought should also be given to expense categories currently defined in the Census, although this suggestion may prove impractical since few producers categorize such expenses.
- To further facilitate MOF planning related to Crown range use and to assist BCMAF strategic planning for the beef industry generally, the MOF should design, collect and compile a data base directory from Crown range permit and license holders. Data collection could take the form of a questionnaire to be submitted by tenure holders together with their annual fee remittances, or at some Ministry and tenure holders. Data should be collected on each holder's total enterprise, including land base, herd composition, annual production, and stocking levels by season and range tenure. Confidentiality procedures should be determined in conjunction with the B.C. Cattlemen's Association. To allow correlation with Census data, data categories should mesh with Census categories.
- The MOF should augment their current data collection procedures on Crown range improvements with procedures to estimate and record the type and levels of rangeland benefits that are expected to accrue to users as a result of structural and non-structural improvements and grazing management plans. Specifically, quantitative estimates of new or additional AUMs created should be made for all development (as opposed to repair and maintenance) projects. These estimates should be made by field staff in conjunction with range users. The useful lives of the projects should also be estimated. The impracticality of rigorous biological data collection should not be allowed to discourage estimates from being made in this area; unless such estimates are made, there is no basis on which to evaluate and plan cost efficient improvement programs. Further, the Ministry should endeavour to develop monitoring and inventory programs to produce a better understanding and more precise estimates of the impacts of its Crown range interventions.

C.0 Value of Crown Range

C.1 In economic theory, the value of a good or service is defined as the net benefit that it confers on the consumer and is based on consumer willingness to pay. Willingness to pay, in turn, is dependent upon a host of factors related, in the case of intermediate goods and services, to the role of the input in the production function of other products and to the cost of substitutes for the input.

What holds in theory concerning the valuation of any intermediate good or service should also hold true in the case of the value of forage to the beef producer. However, beef producers do not necessarily bear the full benefits and costs of their cattle grazing on Crown range and, therefore, the value of Crown range to the beef producer does not necessarily reflect the value of Crown range to society at large. In economic terms, there are often externalities associated with cattle grazing on Crown range, whose costs (for negative externalities) and benefits (positive externalities) are not borne or captured by the cattle owner. The discussion that follows deals only with Crown range value to beef producers.

C.2 However, straightforward it may be to conceptualize Crown range valuation, attempting to put a reasonable estimate on its actual value to B.C. producers is another matter entirely. Grazing cost data cannot be isolated from other farm expense data; development cost data cannot be related to productivity; and model cost data or data on observed private grazing fees are only available for a few locations and are not collected in any comprehensive, systematic manner. Consequently, it is recommended that:

- The MOF, in concert with the BCMAF, should sponsor or carry out further research on the value of Crown range to B.C. beef producers, in terms of the costs of alternate forage sources that are avoided through use of Crown range, as well as research into the costs, to B.C. producers, of using Crown range. The minor amount of work done in these areas in B.C. is dated and only addresses costs in one limited area within the Thompson-Okanagan region. The research should take the form of case studies carried out across a broad sample of B.C. rangeland areas.
- The MOF collect, interpret and use data on Crown range productivity responses or/and livestock production responses arising from expenditures on Crown range.

C.3 Based on the limited information on the costs of Crown range alternates, it is estimated that the gross value of currently used Crown range (before consideration of the costs of using the range) varies between $15-50/AUM for most range situations in the province, with most frequent values falling within $15-20AUM and only superior quality ranges, particularly, but not limited to early spring ranges, commanding higher values. There will definitely be range settings in the province where gross values are less than $15/AUM.

Based on the above estimates of the gross value and costs of using Crown range in B.C., it is estimated that the net value, exclusive of fee, of most Crown ranges lies between $1.50 · 39.50/AUM, with most values falling between $1.50 - 9.50/AUM, with only superior quality ranges having values higher than this amount.

C.4 This study does not have a mandate to recommend levels for future Crown range grazing fees in the province. However, the following comments, based on the assessment of range values carried out in this study, as well as the findings stemming from the detailed producer profile, are offered for consideration.

An auction system would eliminate all problems involved with determining range values and would also ensure that range is allocated to the more efficient producers. However, equity and political consideration appears to mitigate against the adoption of an auction system and recent experience with such a system in Montana appears to raise concerns about the practicality of the method. If a decision is made not to adopt such a procedure, in whole or in part, then multiple-rate grazing fees should be considered as a substantially preferred alternative to a single, province-wide fee. Multiple rates can be set to allow for differences in range value and use, this would be more equitable to producers and would ensure that the Crown was obtaining user fees in a closer proportion to actual value. For discussion purposes, the following range and use differences are suggested as being among those that could be addressed by such a system:

- Broad regional climatic/productivity conditions;
- Season of use;
- Relative cost of use (based on ha/AUM or other
- suitable proxy;
- Distance to access range;
- Species of animal using the range;
- Maturity of animal using the range; and
- Breed of animal using the range.

D.0 Industry Outlook

D.1 Based on a partial survey of producers, Statistics Canada, estimated that the B.C. cow herd comprised about 298,000 head on July 1, 1988, including some 75,000 dairy cows. This is an increase of 2.6% over July, 1987 levels and 4.6 % over July, 1986, corresponding to the general decline in cattle numbers that has occurred in North America since the peak of the most recent cattle cycle was reached in the early 1980's.

Initial estimates of 1989 B.C. and Canadian cattle numbers reinforce the suggestion that a new cattle cycle has commenced in Canada, with increased heifer retention and breeding herd numbers.

The 1988 drought does not appear to have resulted in a major sell-off of stock, either in the U.S. or Canada. The following projection of future conditions in the cattle market assumes that more normal climatic conditions will be re-established.

D.2 Stabilized levels of per capita beef consumption and projected tightening of pork production in late 1989 and 1990, combined with declining beef production at least through 1989, point to increasing fed cattle prices in Canada over the next two years. While continuing firm feed grain prices are expected, feeder cattle prices are also expected to improve over this period. The expansion of the beef herd in B.C. over the next two years is expected to accelerate to an annual growth rate of about 3.5% per annum.

At present, trends favour an optimistic outlook beyond 1990 and a 2.5% per annum growth in the B.C. cow herd is projected to be possible over the period to the end of 1993, excluding consideration of resource constraints.

D.3 The above herd growth projection amounts to 20.3% over 1986 levels and 15.4% over 1988 levels. Based on estimated 1988 levels of sales and profitability in the industry and the associated socio-economic contributions estimated for these levels, as outlined in Section A.4, such an expansion could represent, in 1988 dollars, as much as an additional annual $20+ million in provincial income and an additional 470+ jobs in the provincial economy. In

addition, such an expansion and the additional animal production that it would involve, would create additional income and employment through its positive impact on the B.C. slaughter industry.

E.0 Demand for Crown Range

For potential herd growth to be accommodated or at least maximized, the Range Management Program must be realigned to become a producer of additional Crown range capacity over the next five years. The table below indicates the amount of Crown range capacity expected to be needed by producers in 1993 and the percentage growth in authorized use (over 1987 levels) that would have to occur to meet these demands.

In the absence of additional funding from other sources, production of additional range capacity will involve significant increases in the amount of Range Management Program improvement expenditures. The amount of such funding is not addressed by this study and will obviously depend upon proposed funding levels available through cooperating programs and parties. Whether sufficient additional grazing capacity can be produced in the available time frame is also not addressed, although adequate funding should allow this to be possible. If increases in Crown range capacity are to be developed, improvement programs must obviously be oriented to potential regional demands and projected deficits. In determining these requirements, the feed balance modelling approach used in this brief study is only intended to provide an initial crude approximation of the amount and distribution of potential demands of other range users by crown forage have not been considered by this approach and obviously must be in the setting of Range Management Program goals and objectives. The model itself, or others like it, should be refined and updated with new or more accurate information as conditions should be closely monitored and analyzed for their impact on forage demands and Range Management Program targets revised accordingly.

This study provides no comment on whether such a warfare by producing benefits in excess of its costs. While the expansion of the beef herd will provide the province with obvious income and employment benefits from a socio-economic perspective, whether such an expansion represents the best allocation of the resources involved is dependent upon a host of factors not addressed in this study.

Demand for Crown Range

1983-1987 Authorized Crown Range Compared to Estimated 1993 Demand

(thousands of AUMs)

REGION	1983	1984	1985	1986	1987	1993 Demand	Required Growth
Total	995	998	1010	993	988	1260	28%
South Coast	2	2	3	3	5	5	0%
South Interior	503	502	512	510	508	680	34%
Thompson-Okanagan	419	421	429	428	427	540	26%
West Kootenay	35	34	35	34	33	64	94%
East Kootenay	49	47	48	48	48	76	58%
Cariboo	310	311	308	303	299	391	31%
North-Central	77	76	76	73	71	98	38%
Omineca	36	37	39	36	37	64	73%
Skeena	41	39	37	37	34	34	0%
Peace	103	106	111	103	105	86	18%